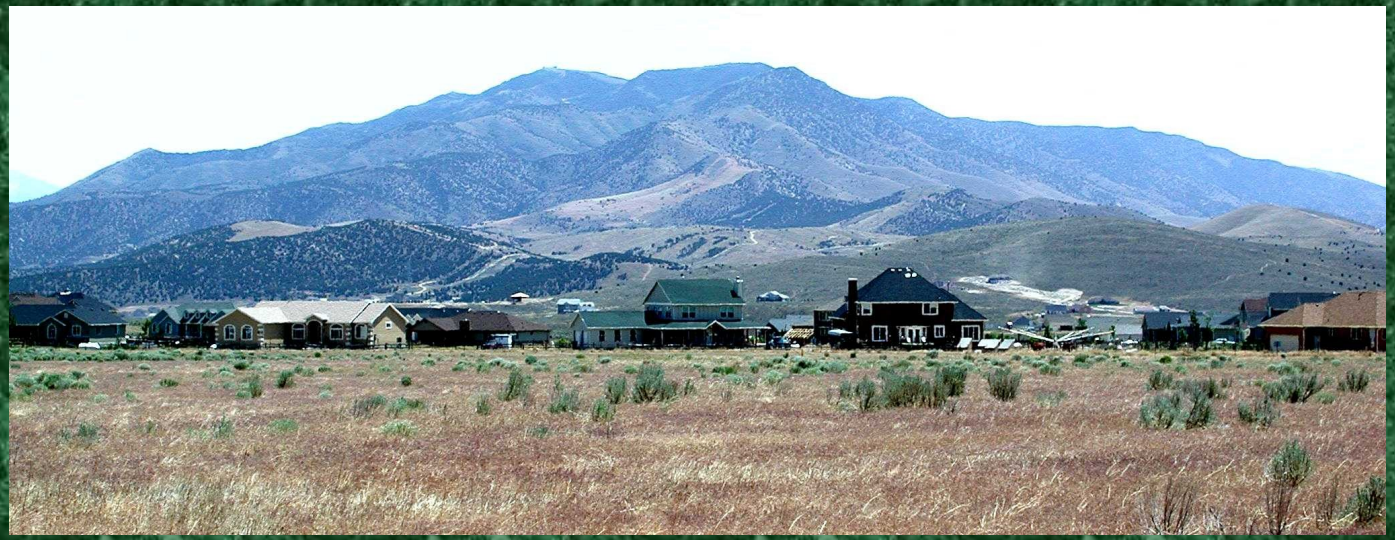
A Suburban Encroachment Analysis at Camp W.G. Williams



by Kevin Bartsch and Nanette Bergeron

Acknowledgements

Todd Sajwaj

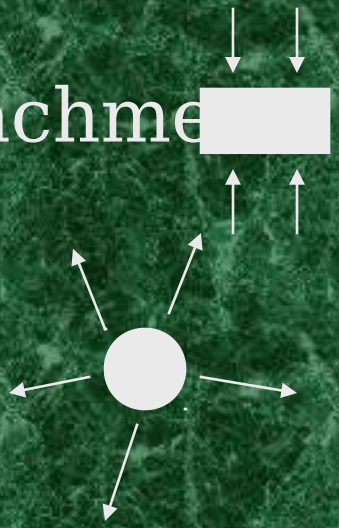
Douglas Johnson

John Crane

Jim Long

Encroachment

Suburban Encroachme

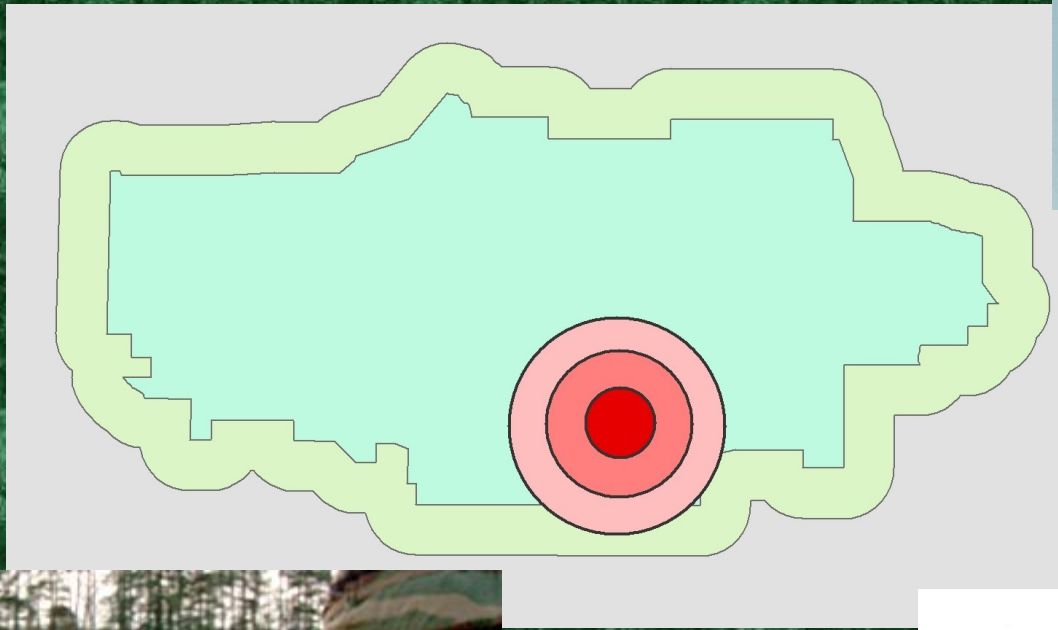


Suburban Sprawl

Issues between Military Installations and Neighbors

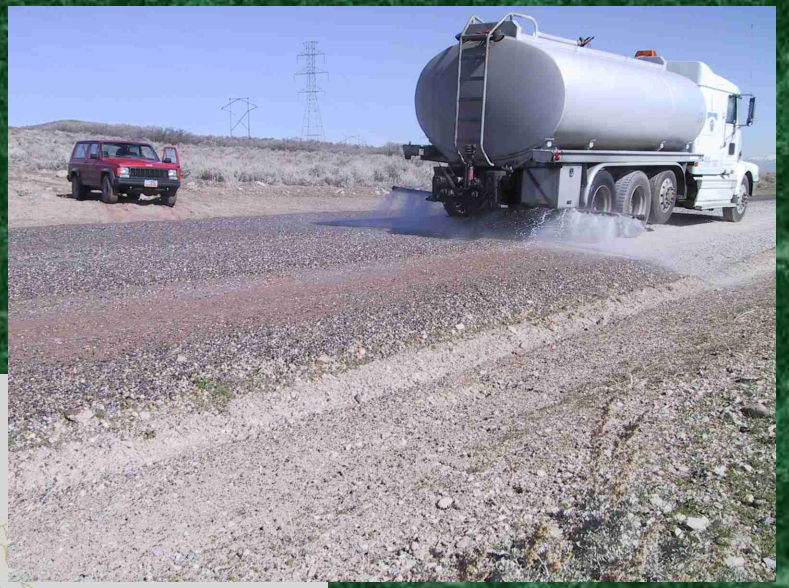
- Noise
- Wildlife
- Dust and Pollution
- Trespassing and Vandalism
- Fire

Noise

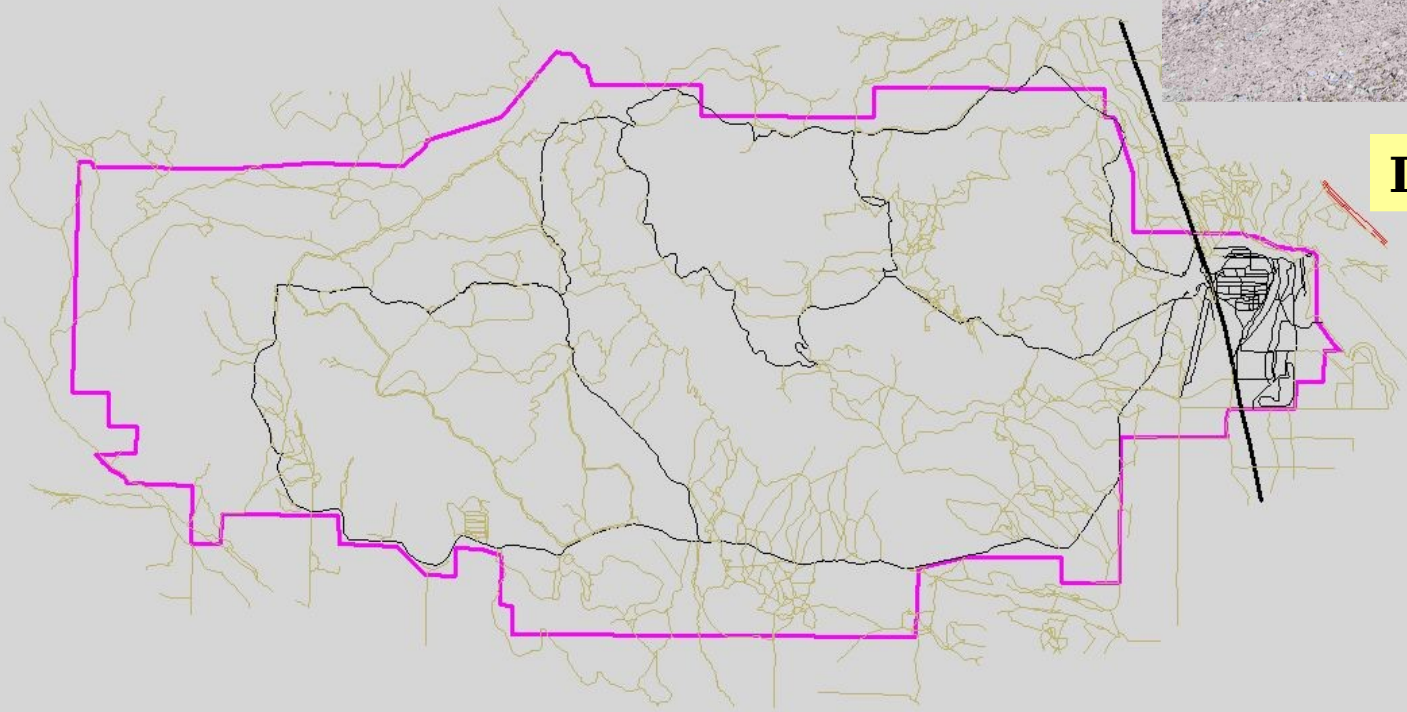


Wildlife

Dust and Pollution



Dust Control Treatmen

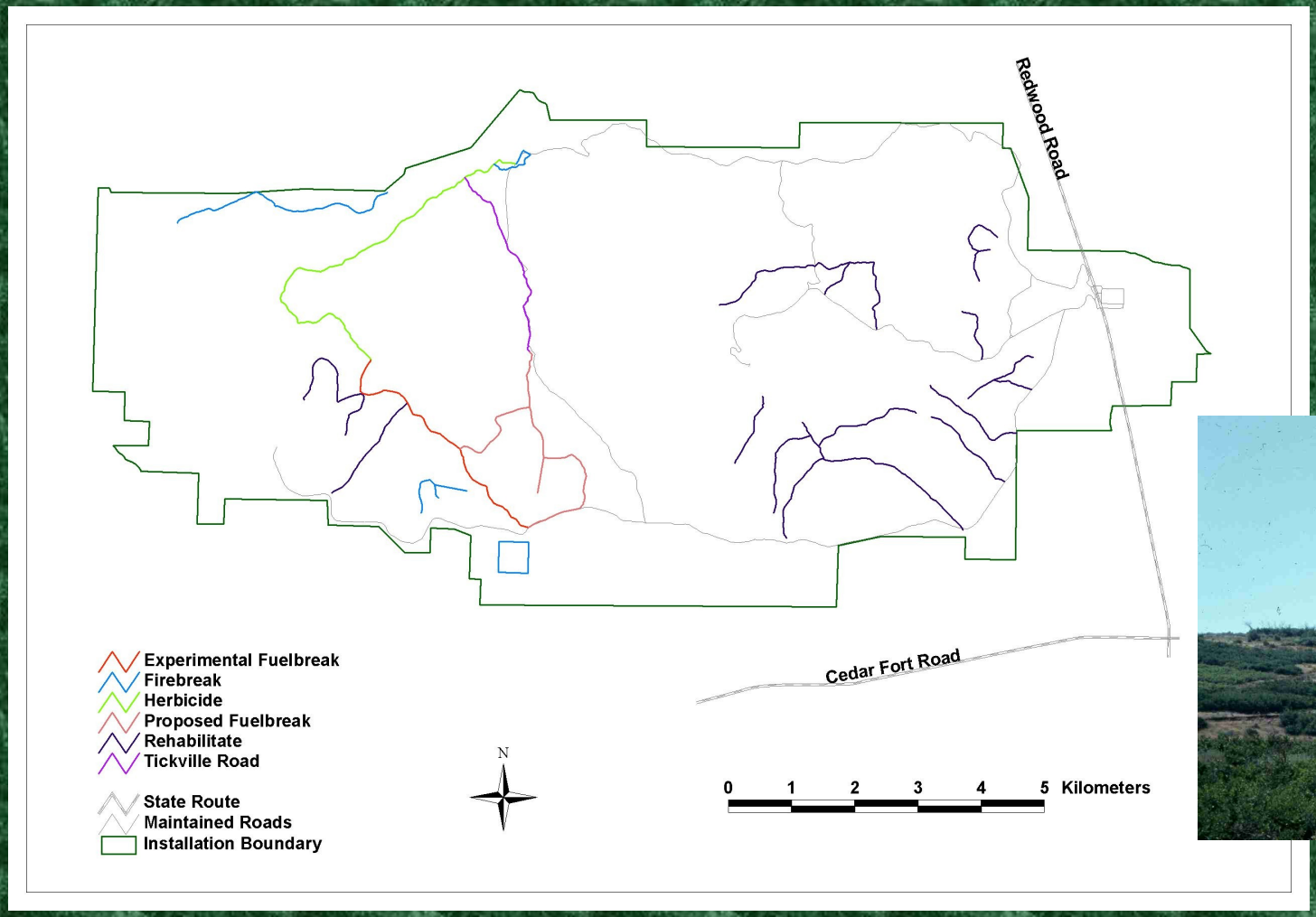


Trespassing and Vandalism

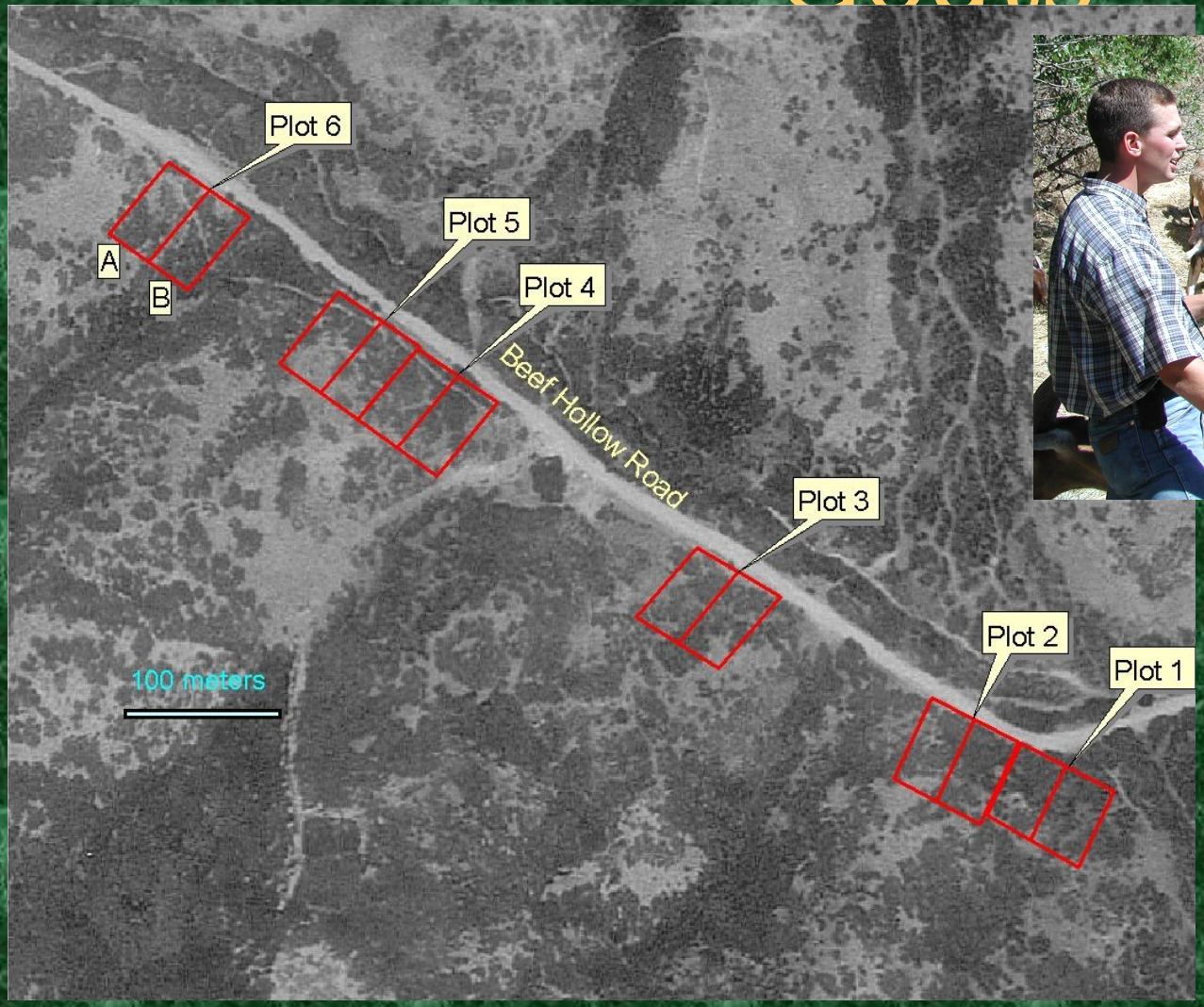
Fires

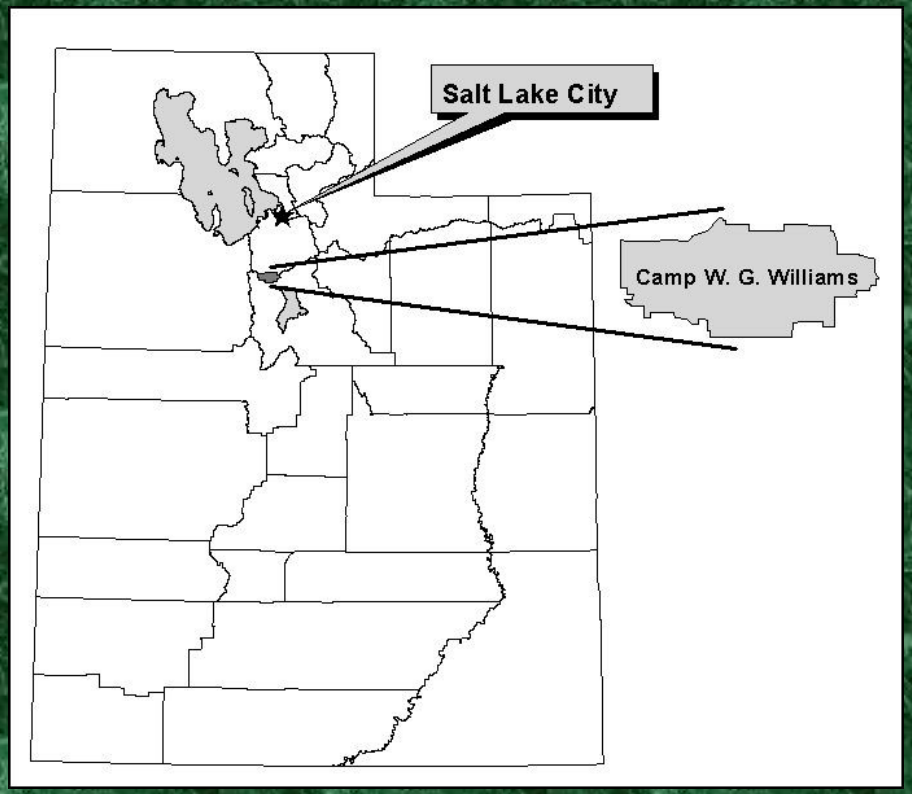
Wednesday 18 July 2001 10AM
Kennicot Copper Mine
17 June Fire (670 ac)

Vegetative Fuel Breaks

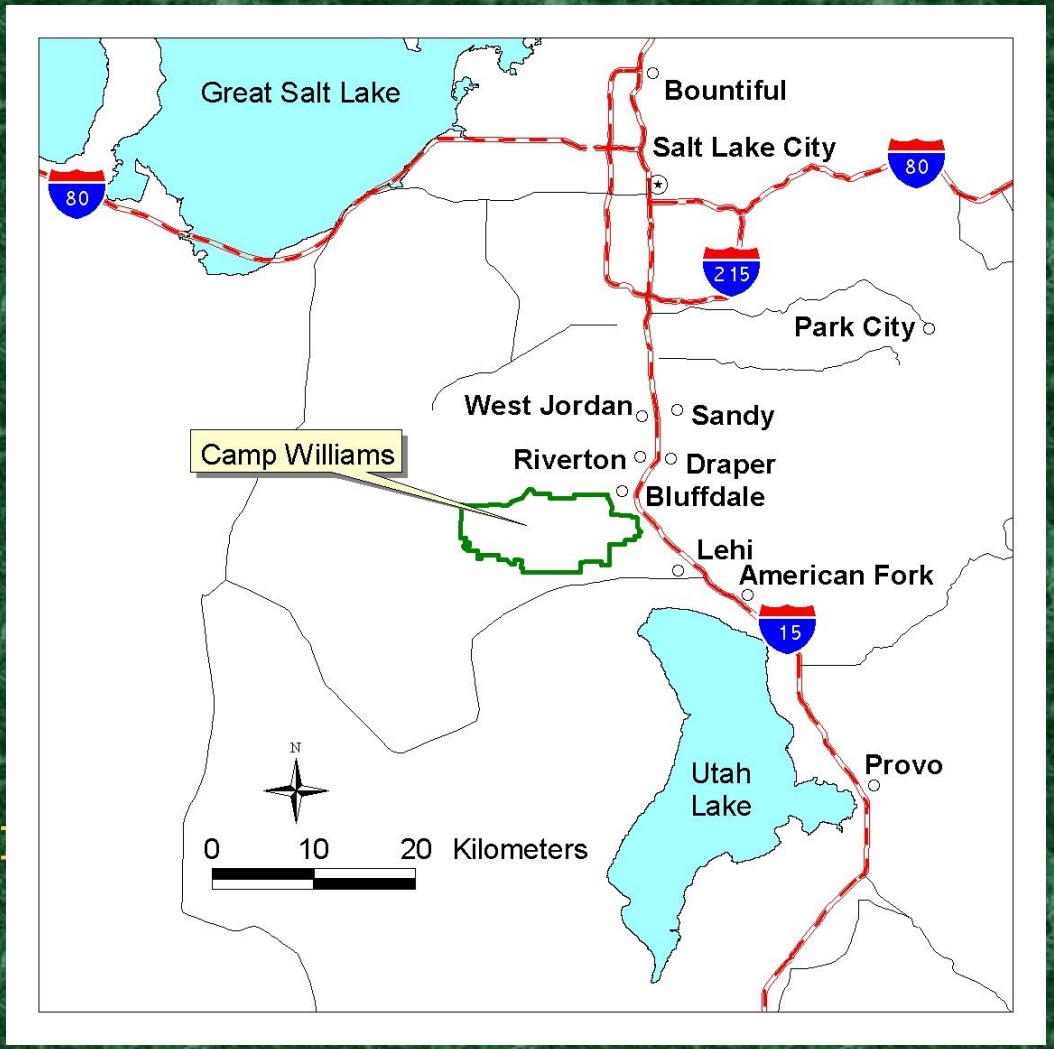


Vegetative Fuel Breaks by Goats



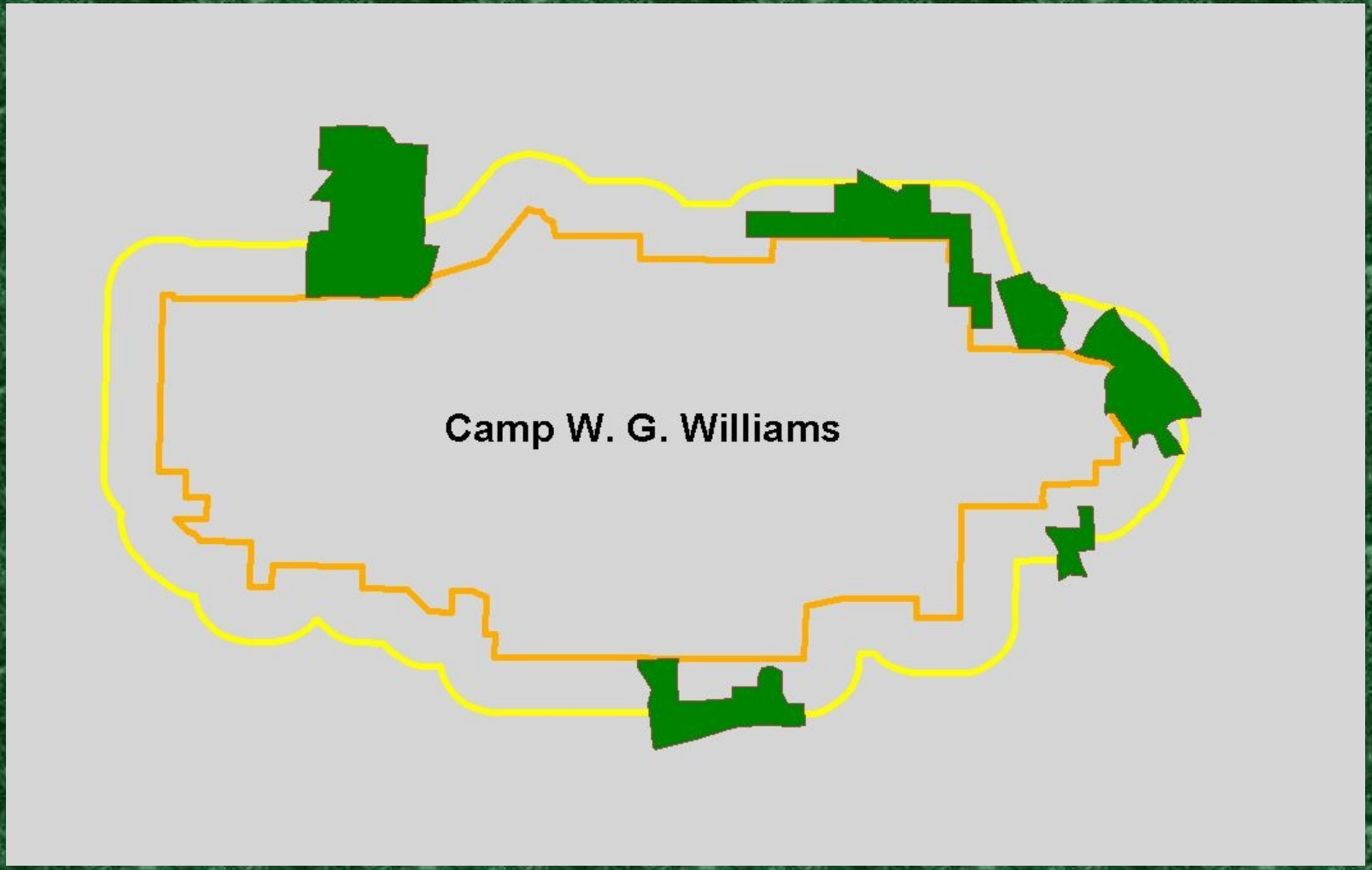


Location of Camp Willia

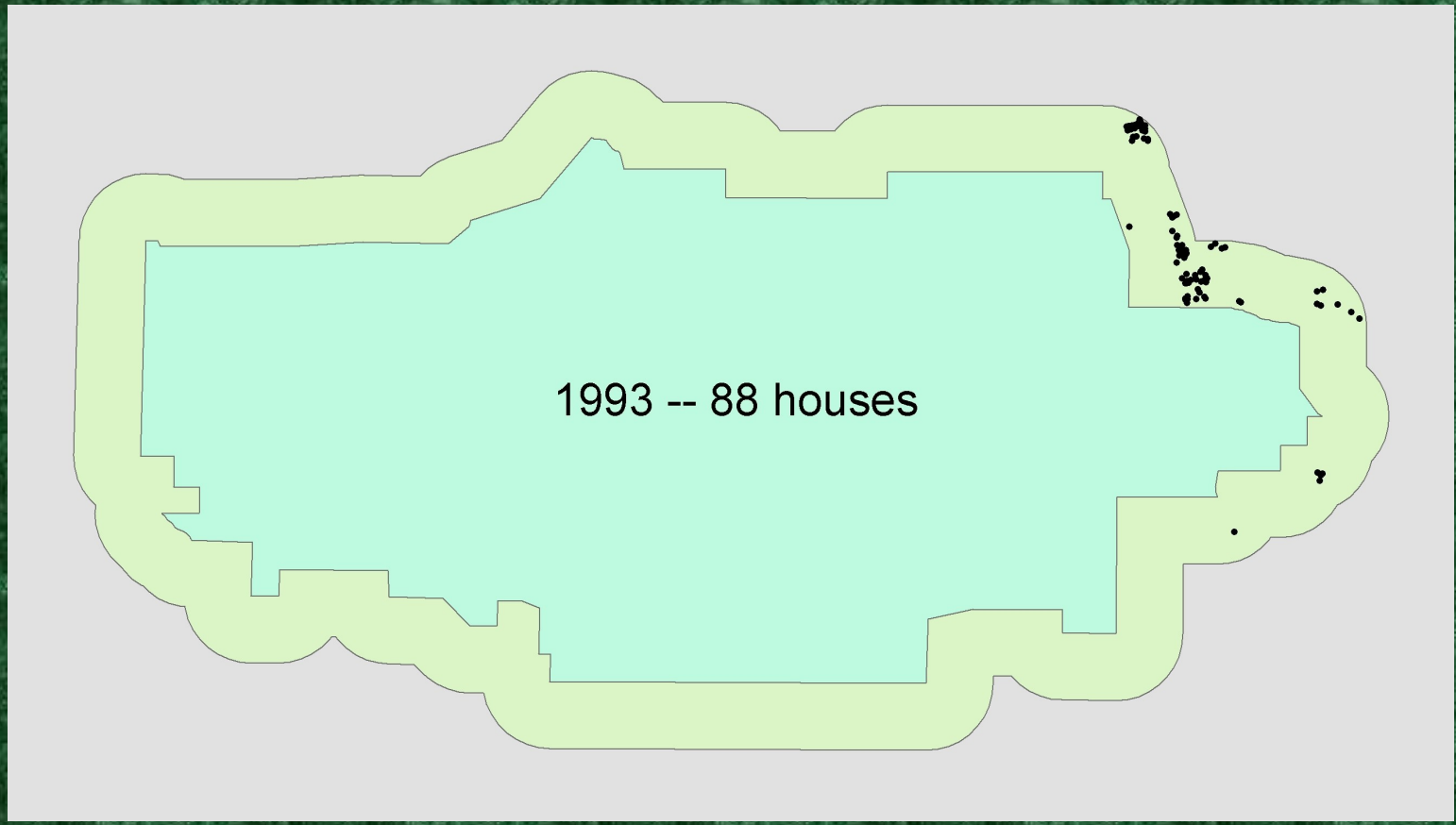


Camp Williams

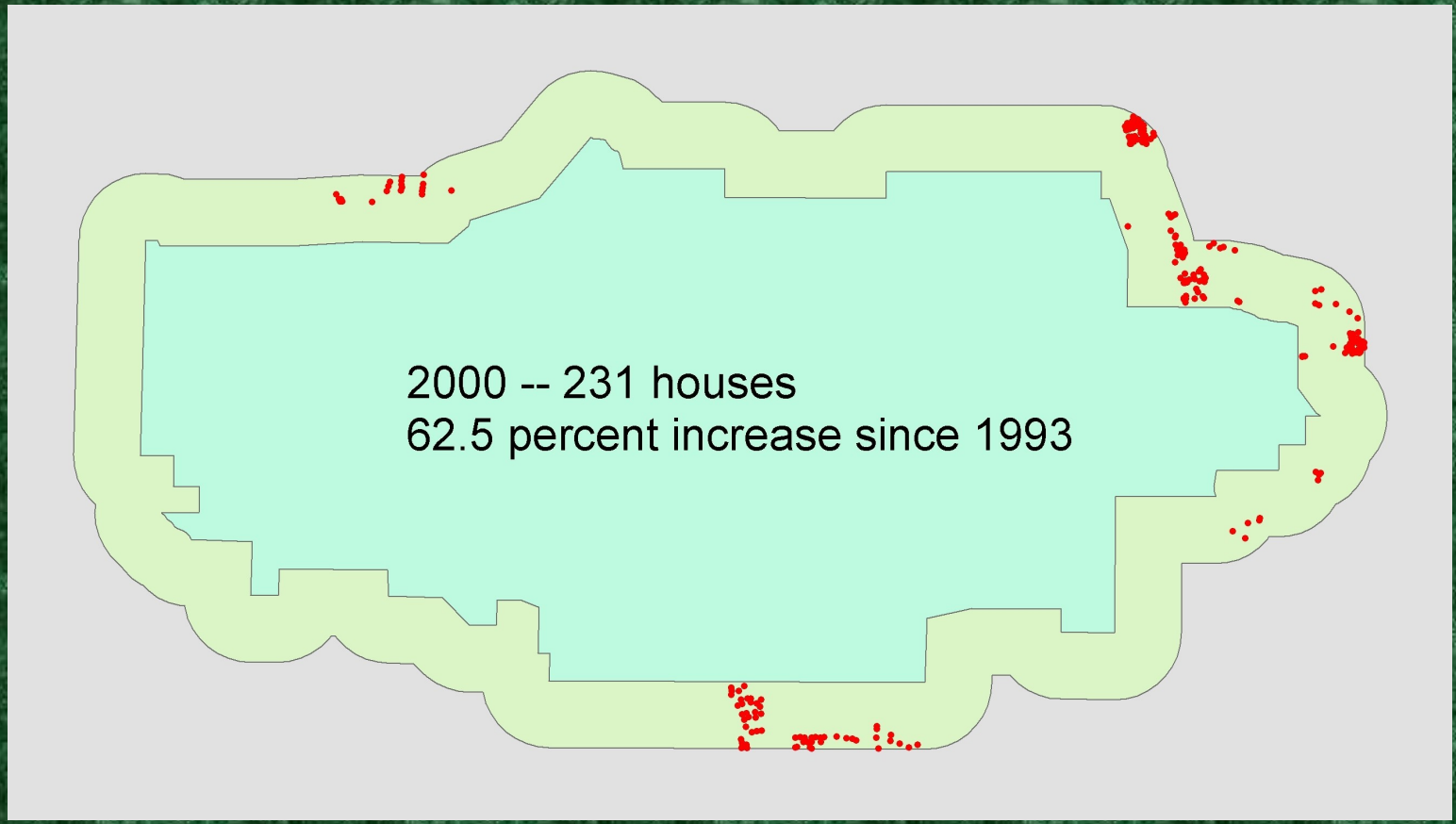
Areas Under Development

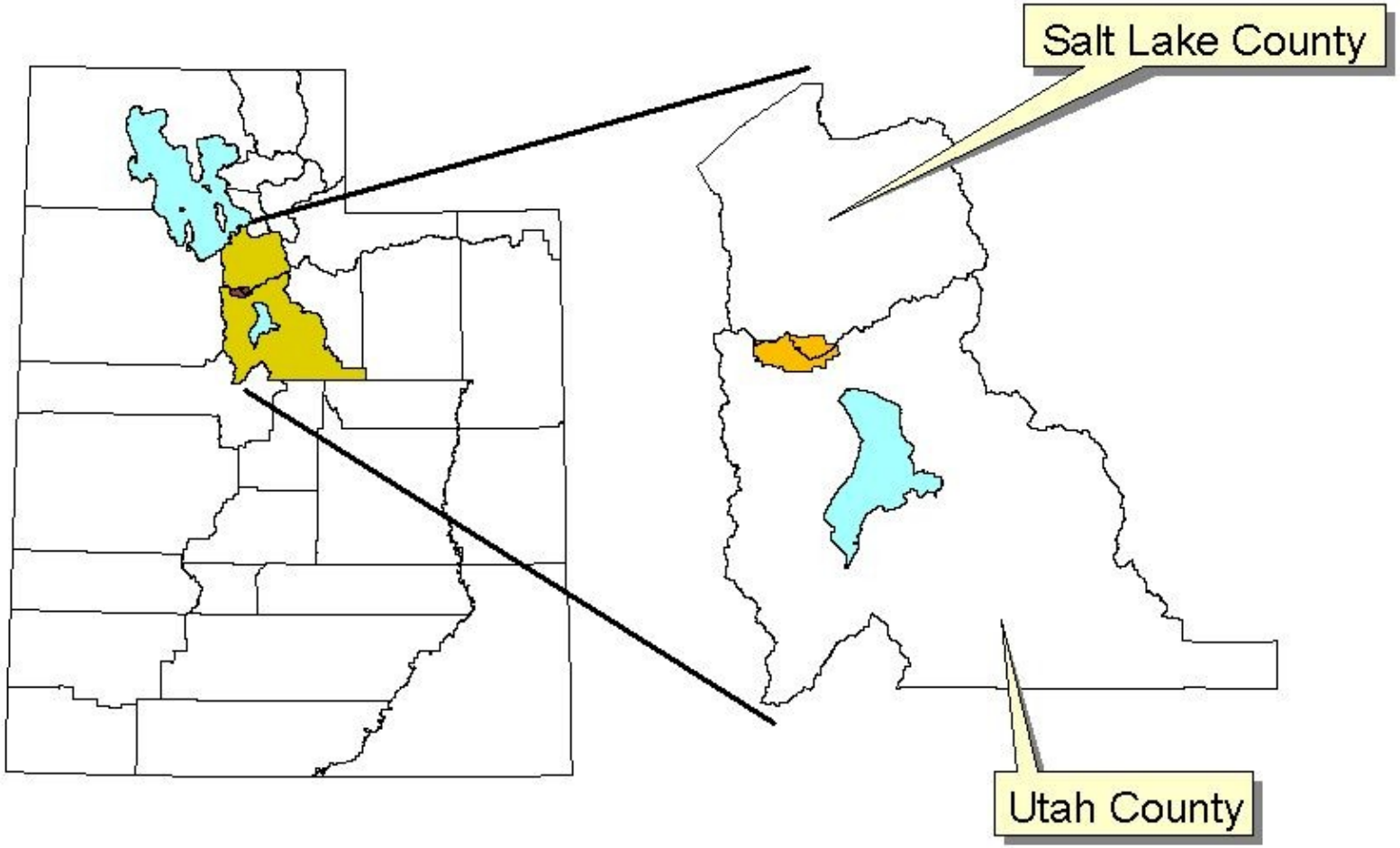


Recent Local Development

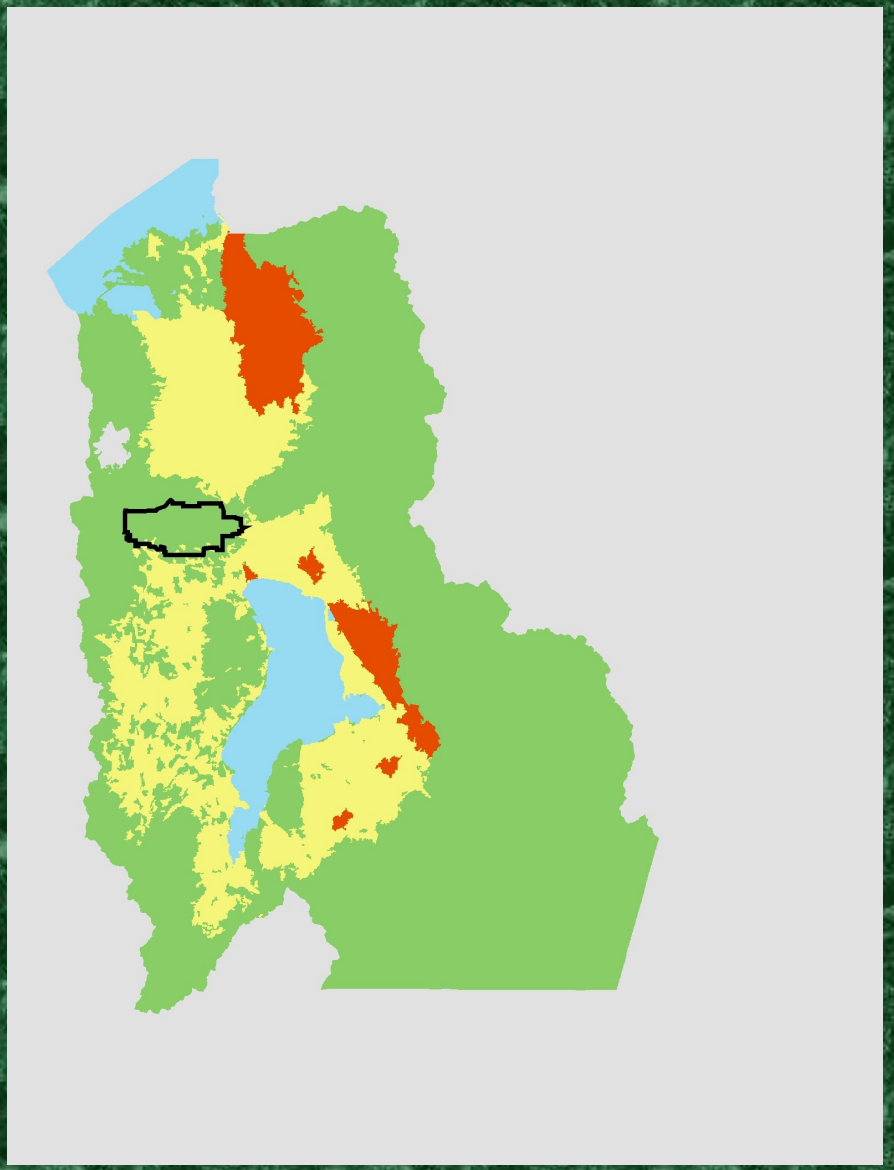


Recent Local Development

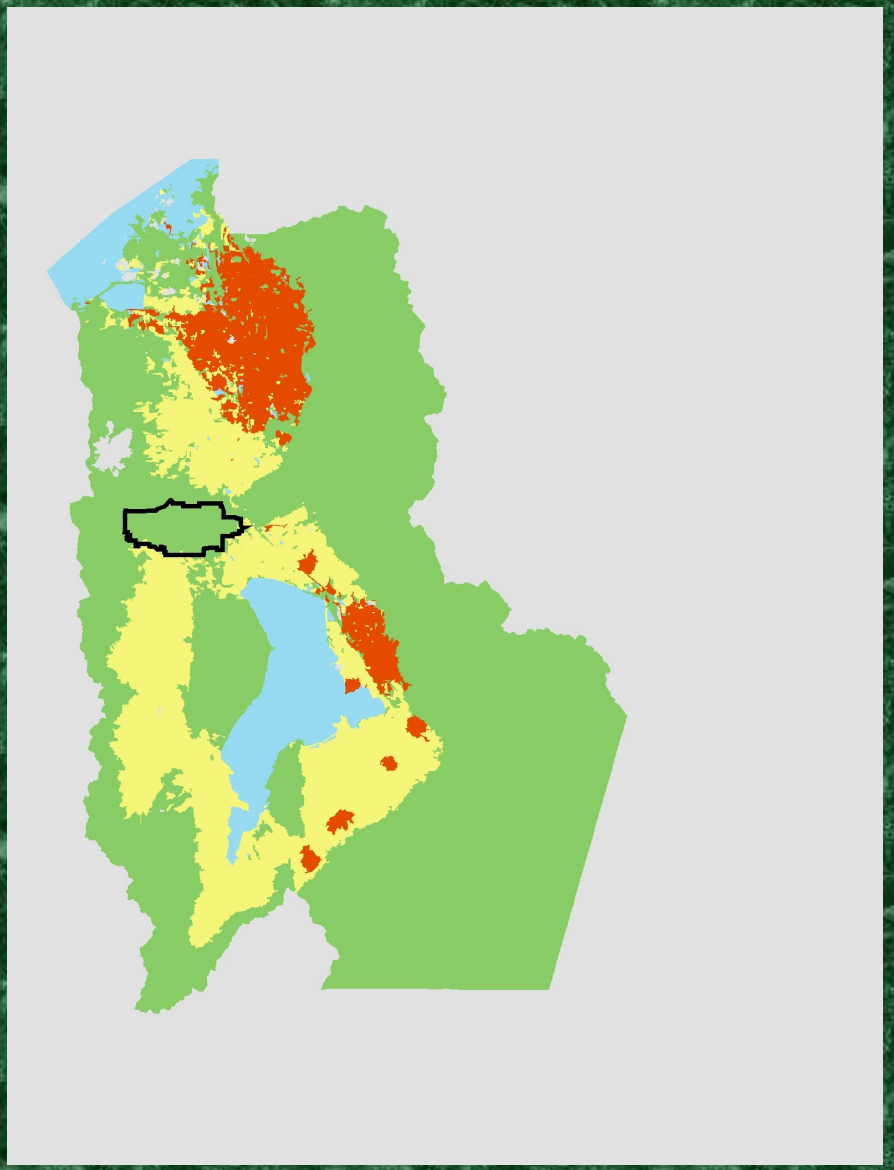



Salt Lake County
Utah County

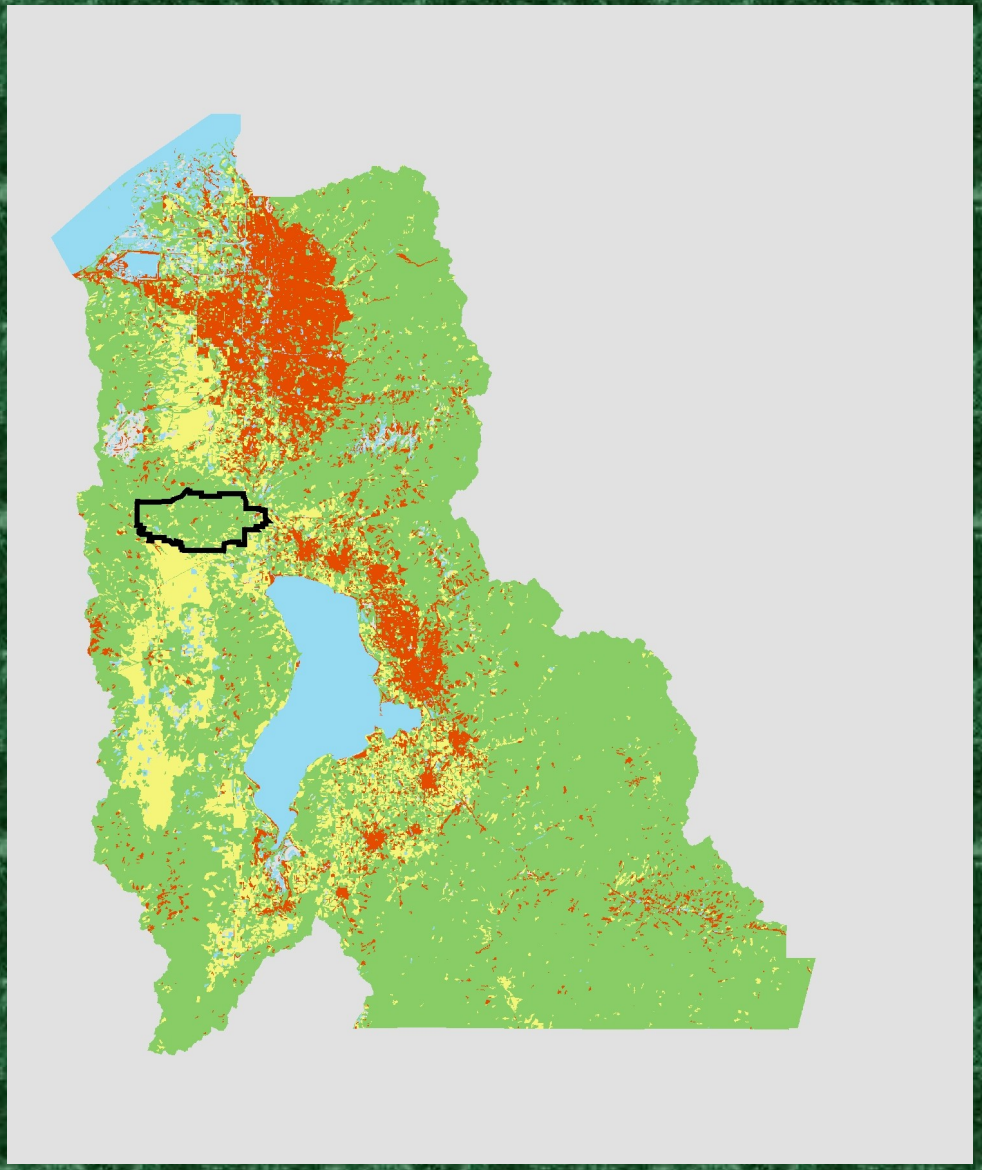
1972



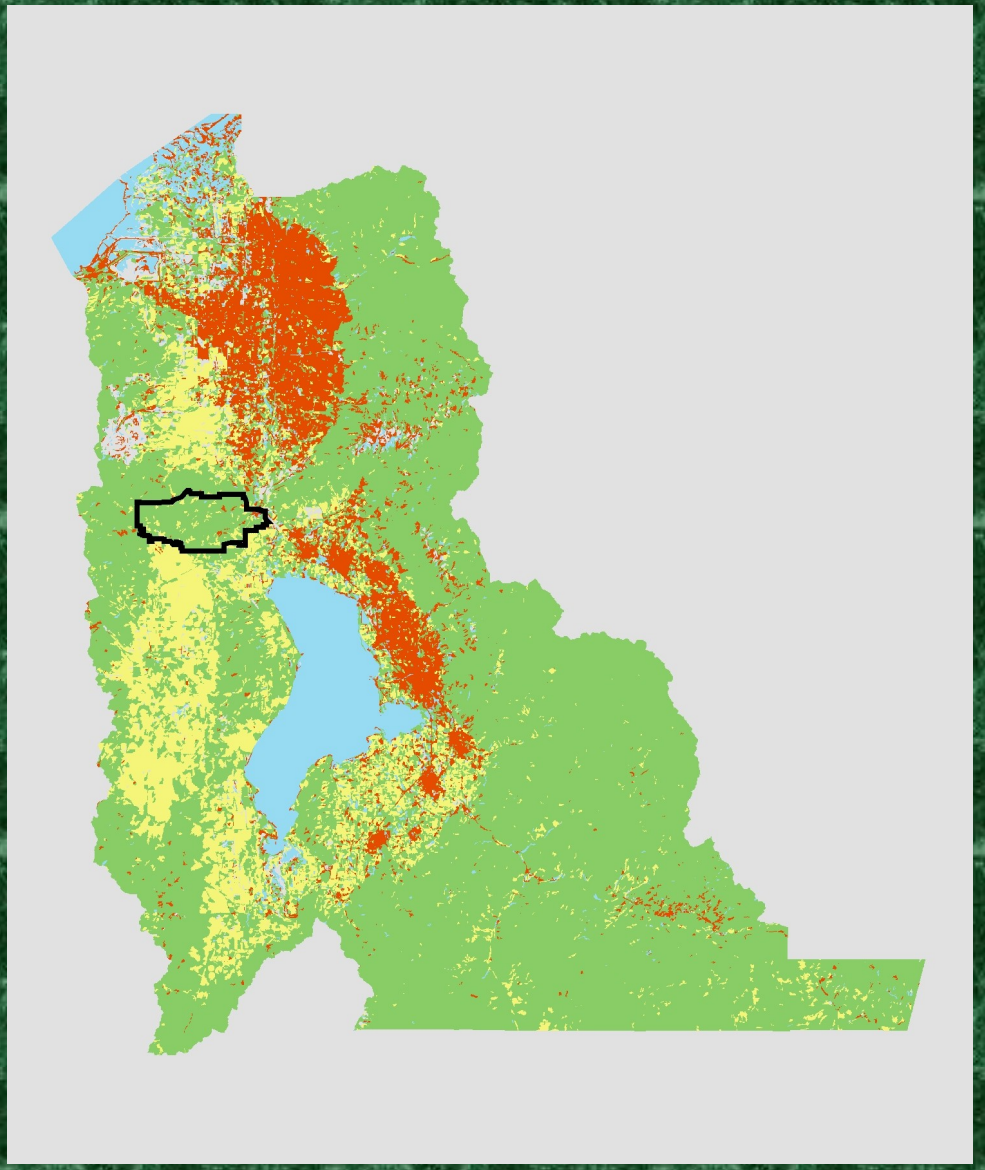
1980



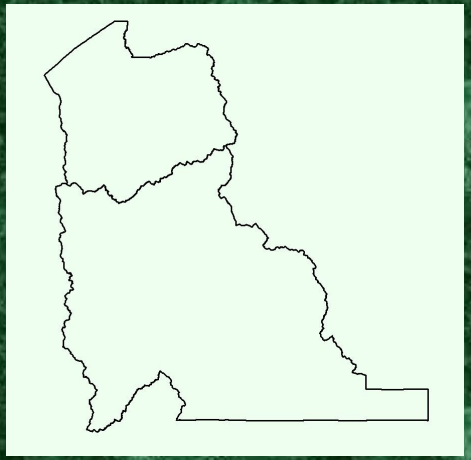
1988

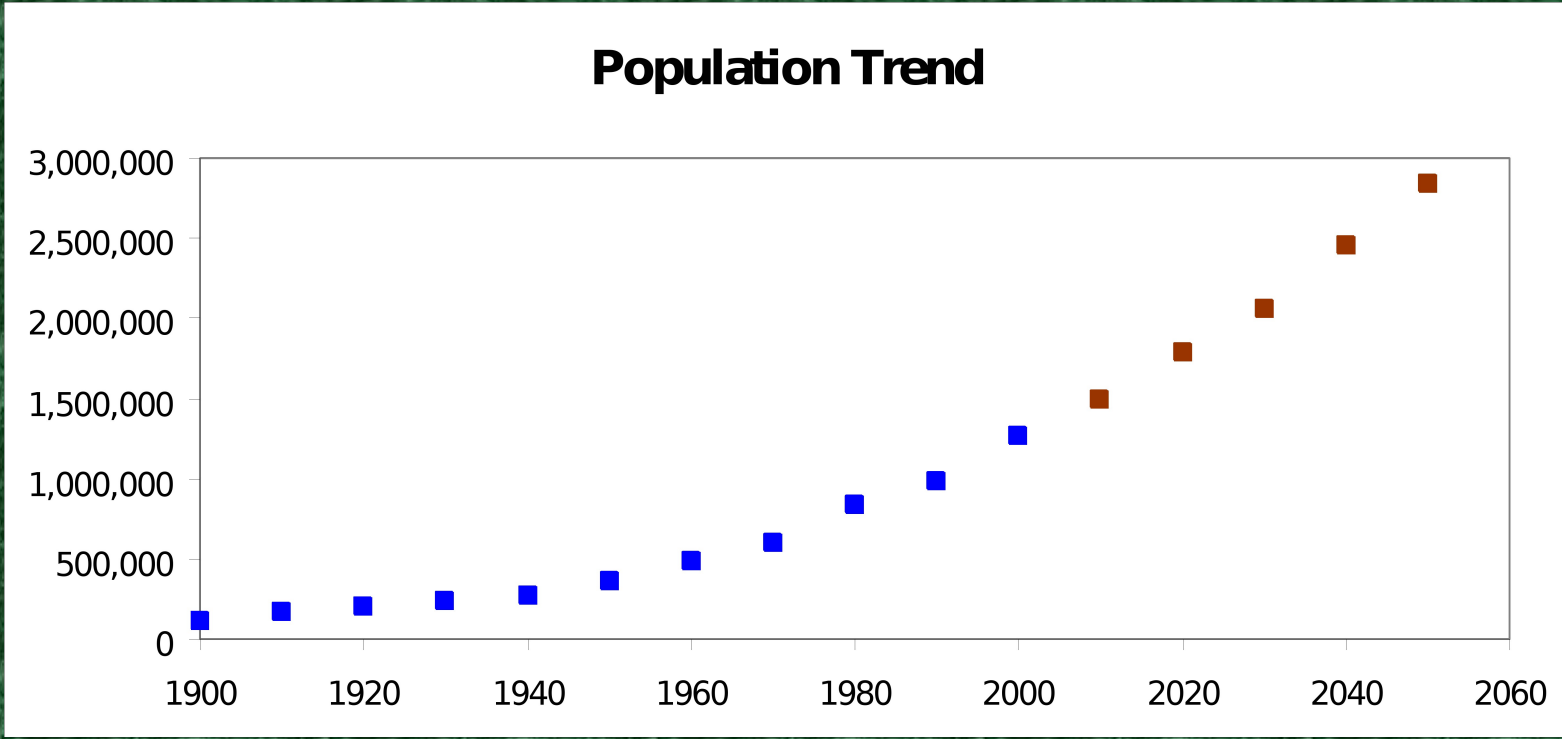


1996

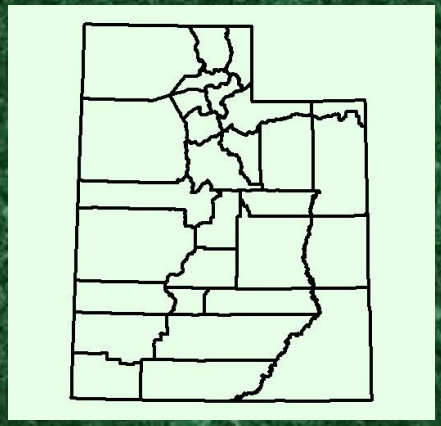


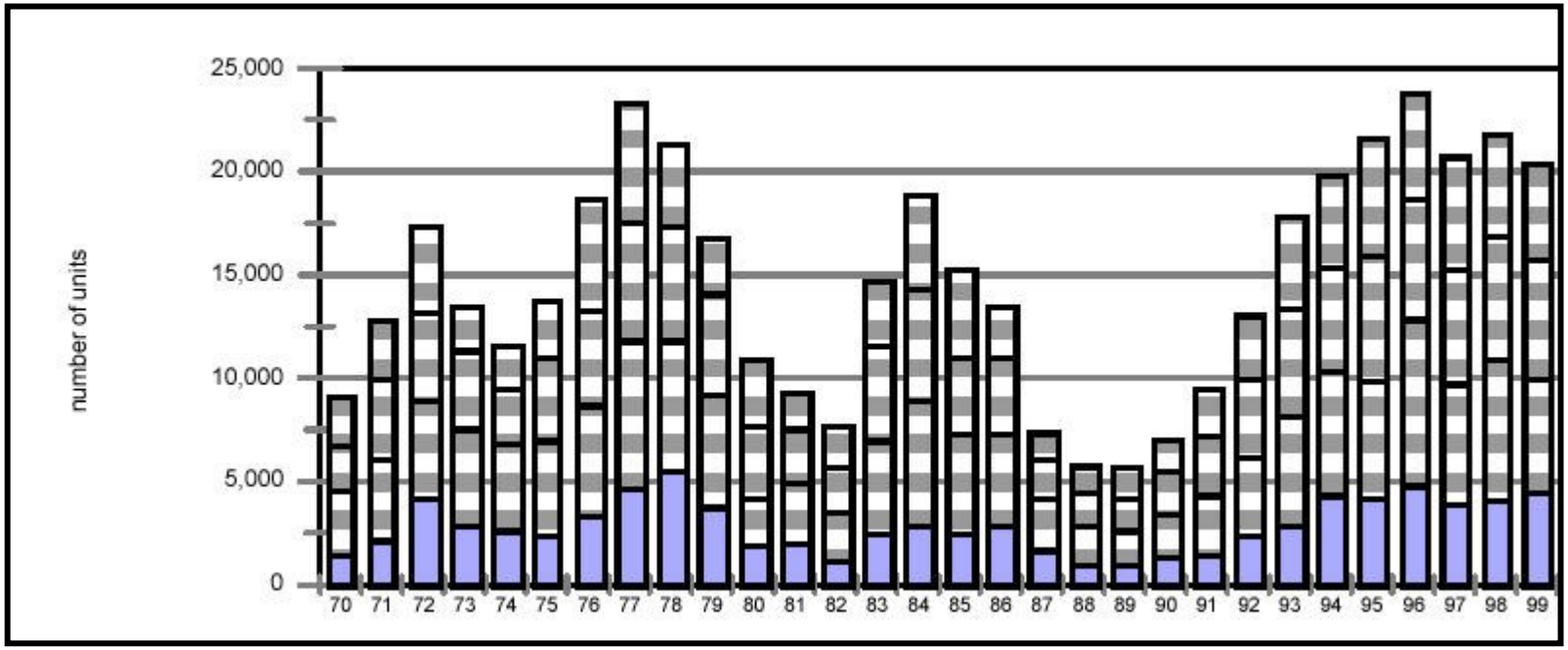
Salt Lake and Utah Counties Population Trend



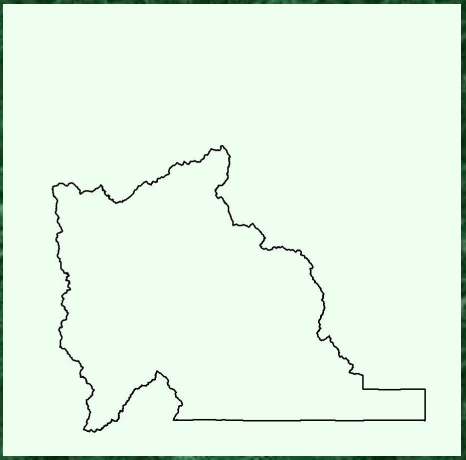


Construction in Utah 1970-1999



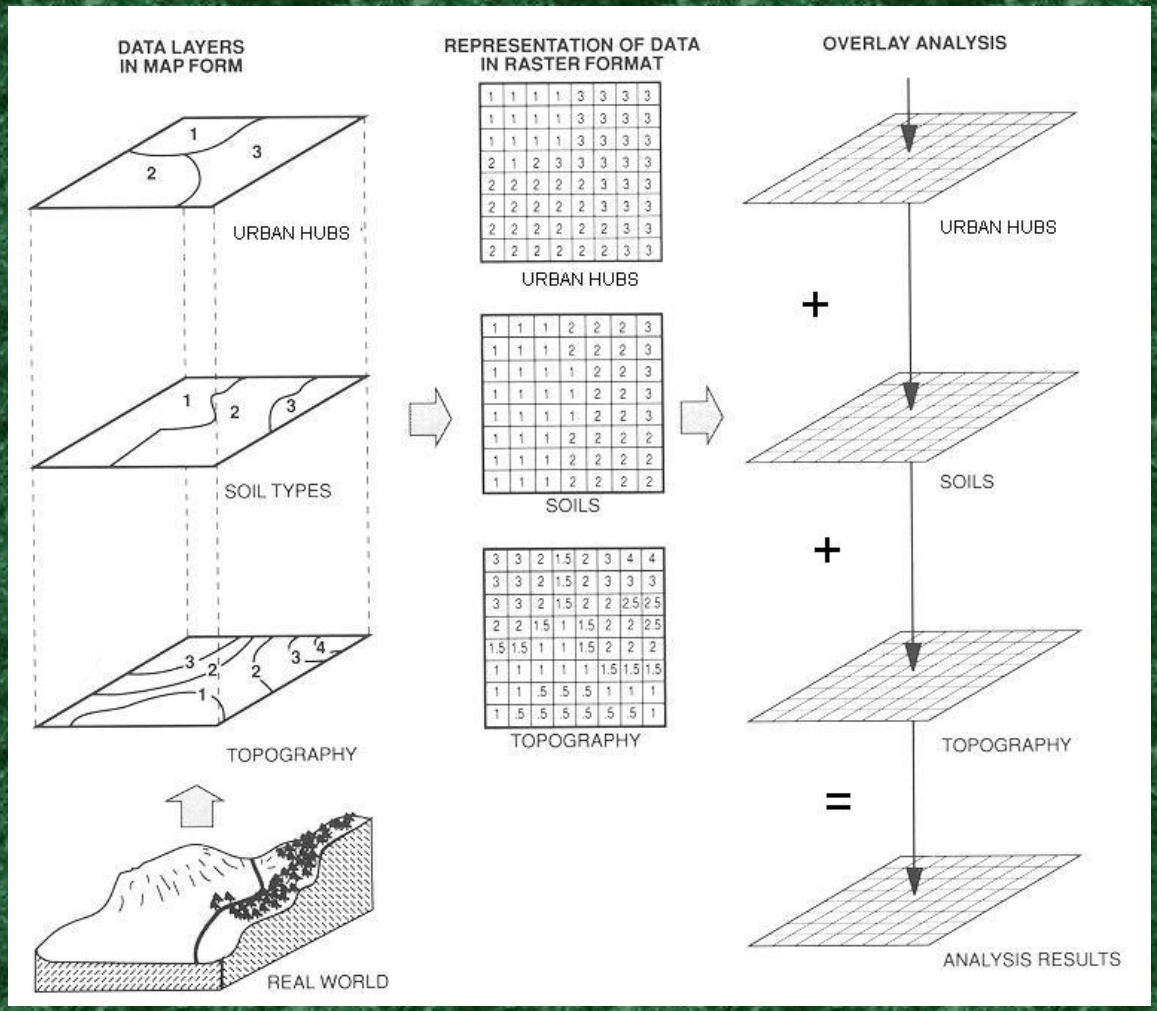


Utah County Farmland



	1992	1997	% Change
Number of Farms	1,696	1,790	+ 5
Acres of Farmland	450,315	374,933	- 17
Value per Acre	$ 1,018	$ 2,244	+ 120

Raster Data and Mathematical Models



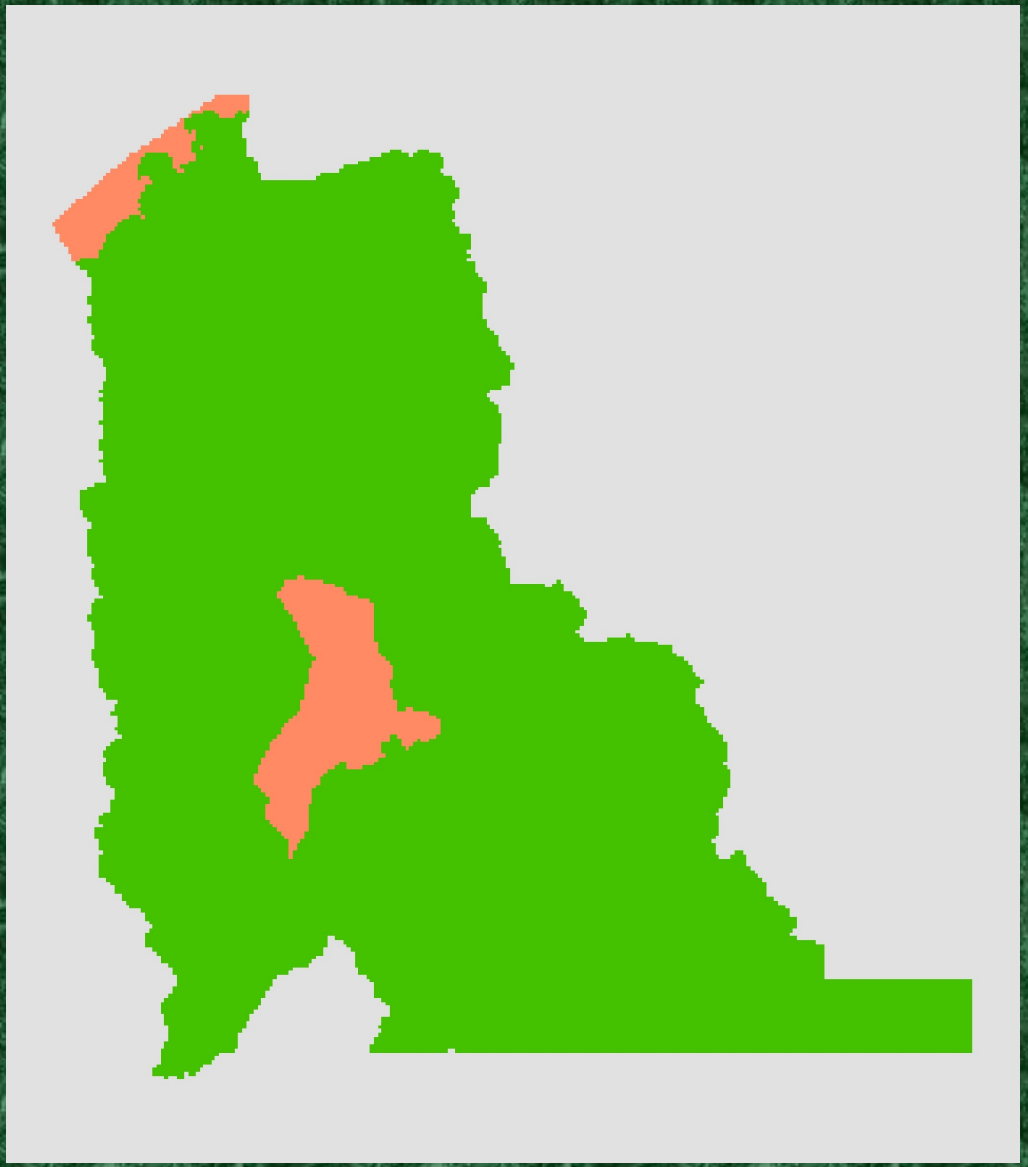
Model 1

- Determines suitable building sites
- Multiplicative model
- Assign value of 0 or 1
- Assign value of 0 to lakes and federal land
- Assign value of 1 to area within a 4 km buffer of roads
- Assign value of 1 to area with < 20 percent slope

Model 1 – Building Sites

Model 1 - Lakes

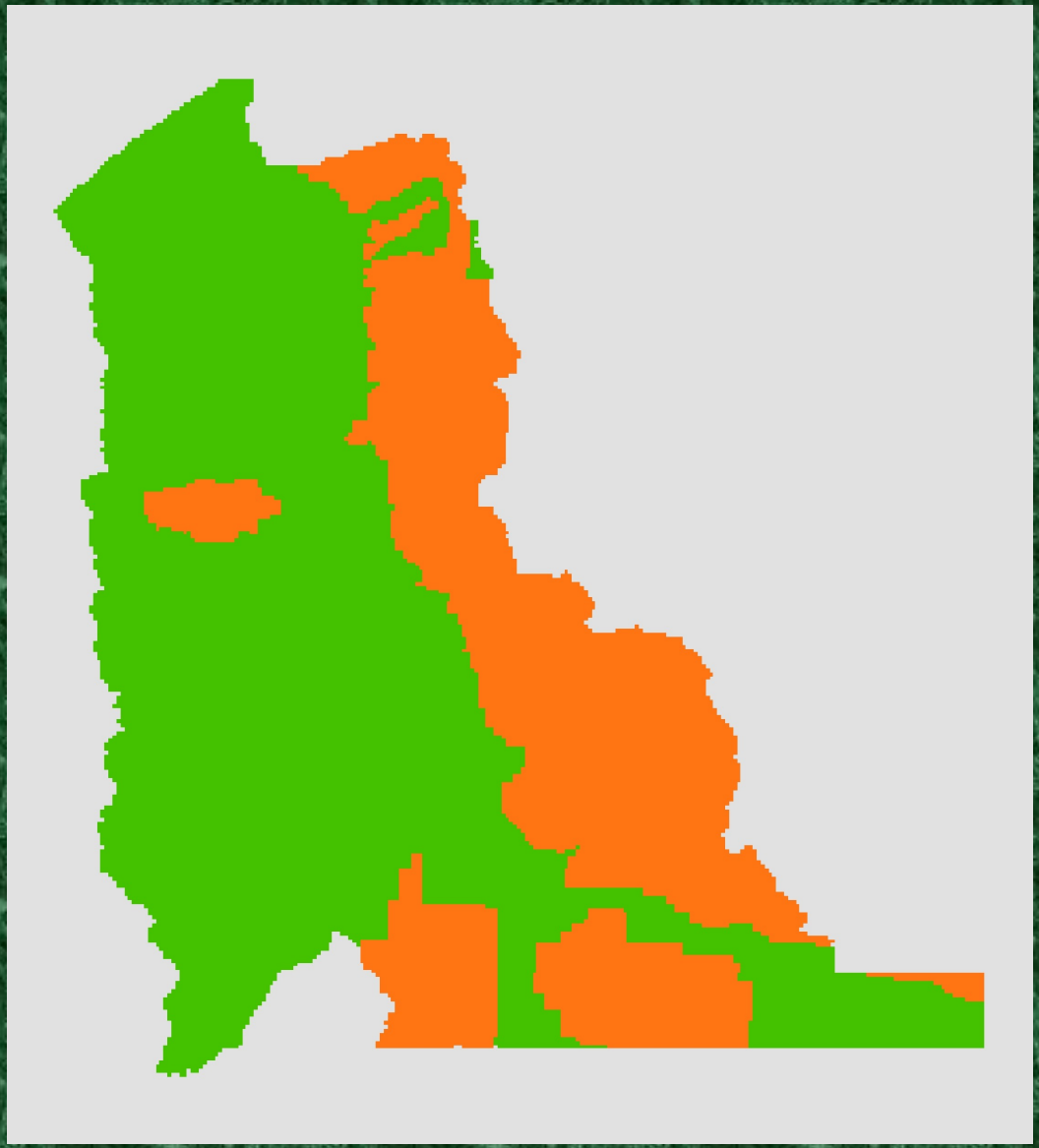
Lakes - Excluded



Model 1 – Building Sites

Model 1 – Federal Land

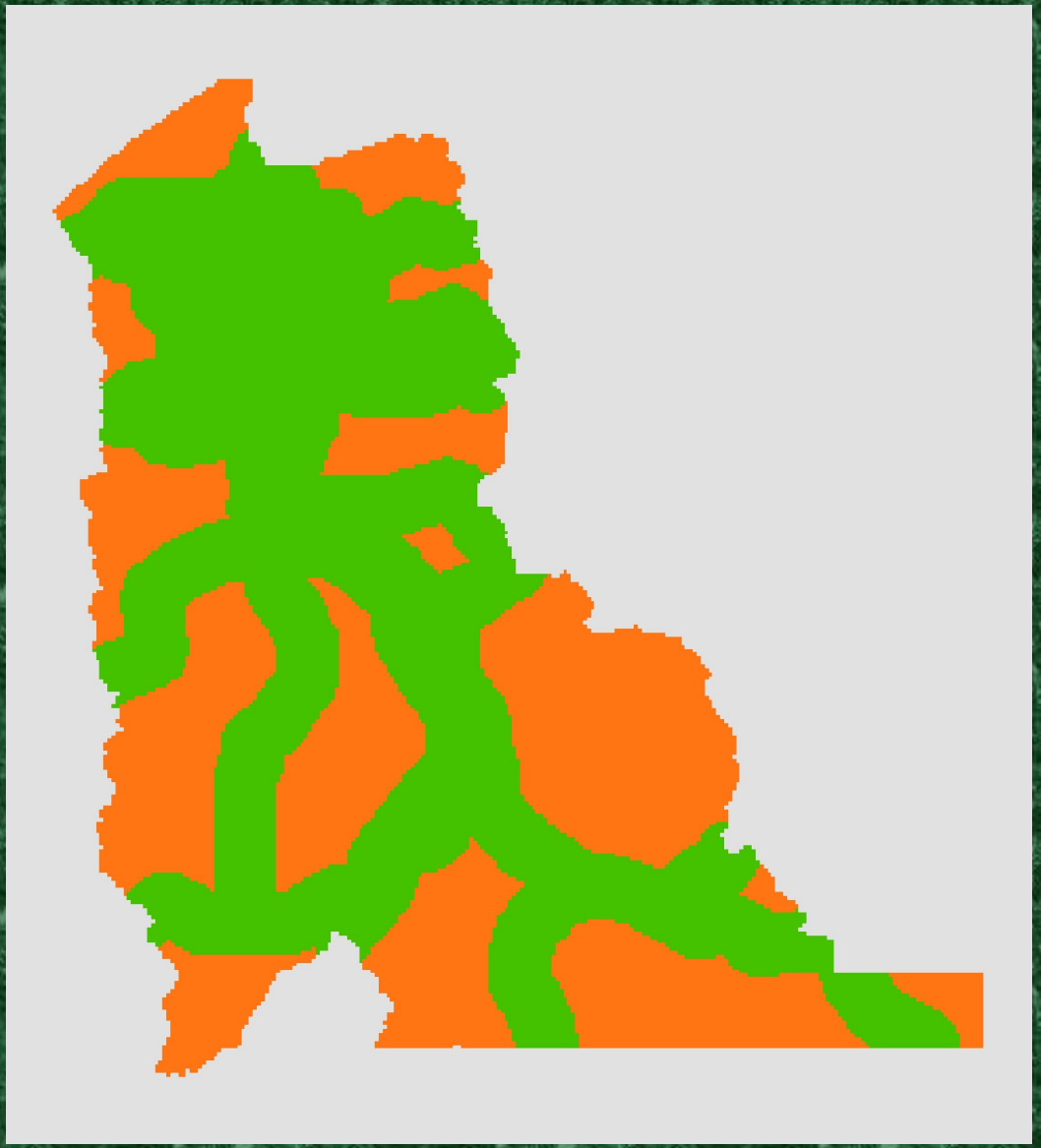
Federal Land - Excluded



Model 1 – Building Sites

Model 1 - Roads

Road Buffer – 4 km

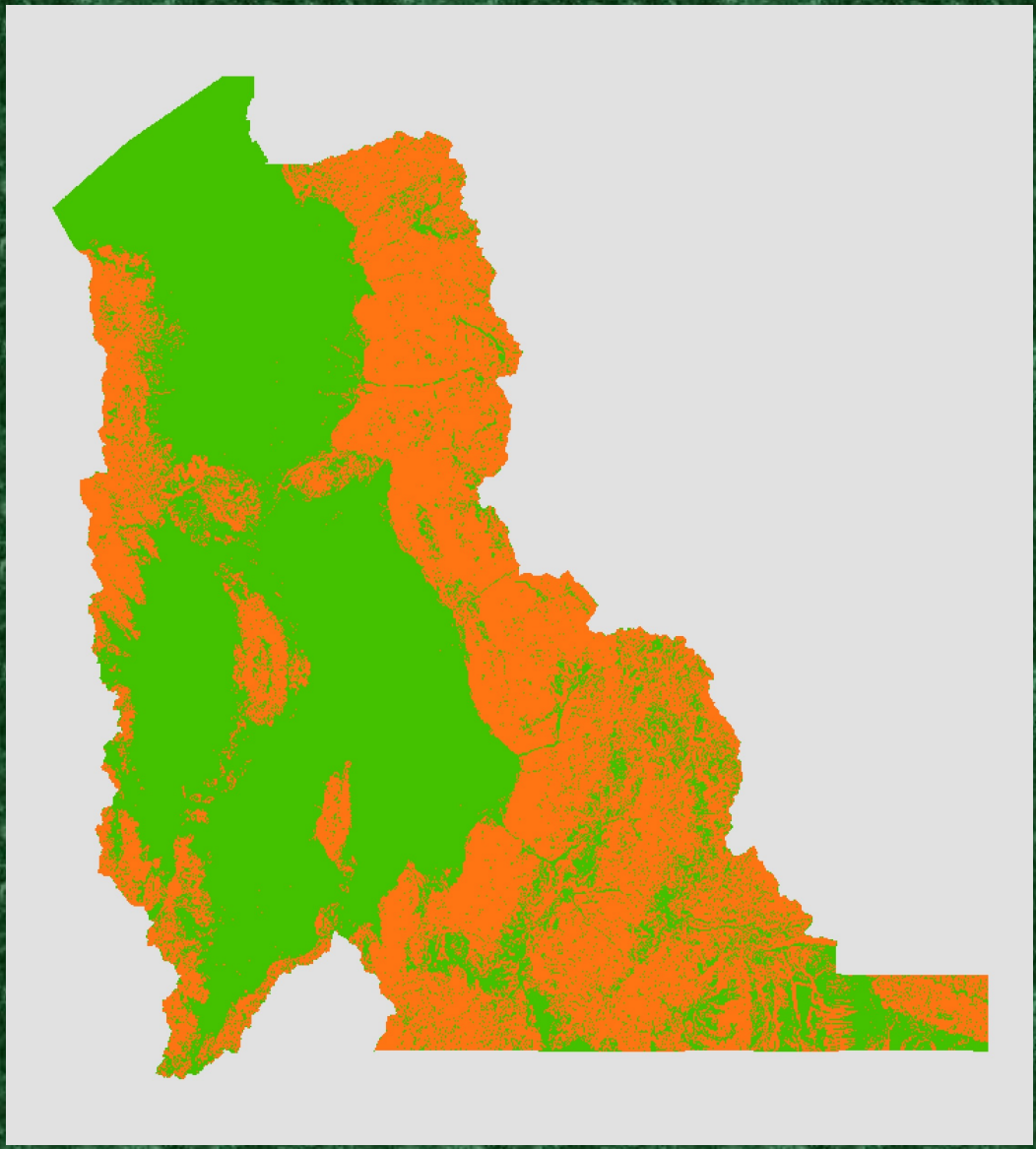


Model 1 – Building Sites

Model 1 - Slope

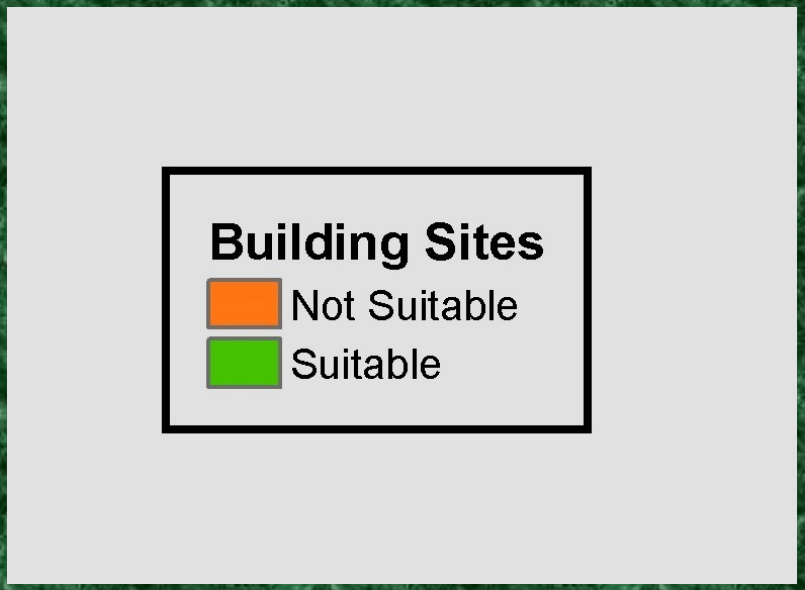
> 20% = unsuitable building site

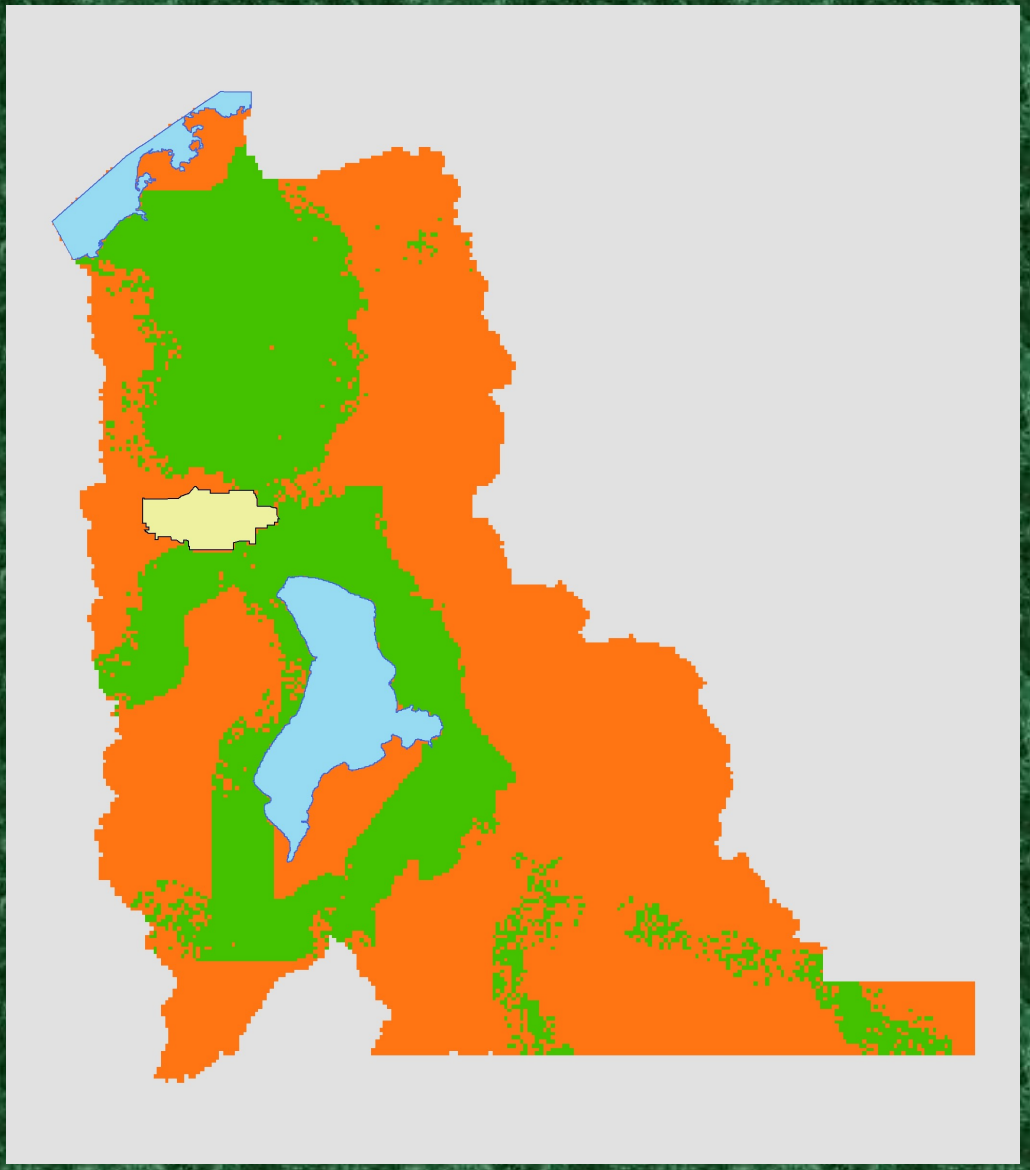
< 20% = suitable building site



Model 1 – Building Sites

Model 1 - Suitable Building Sites





Model 2

- Determines areas most likely to be developed first
- Additive model
- Assign value of 0 - 3
- Exclude lakes and federal land

(Roads + Slope + Soils + Urban Hubs + Water Works) * Lakes * Federal Land = Preferred Building Sites

Model 2 – Building Site Preference

(Roads + Slope + Soils + Urban Hubs + Water Works)

* Lakes * Federal Land = Preferred Building Sites

Model 2 - Roads

Value	Road Buffer
3	**0 – 1.5 km**
2	**1.5 – 2.5 km**
1	**2.5 – 3.5 km**
0	**> 3.5 km**

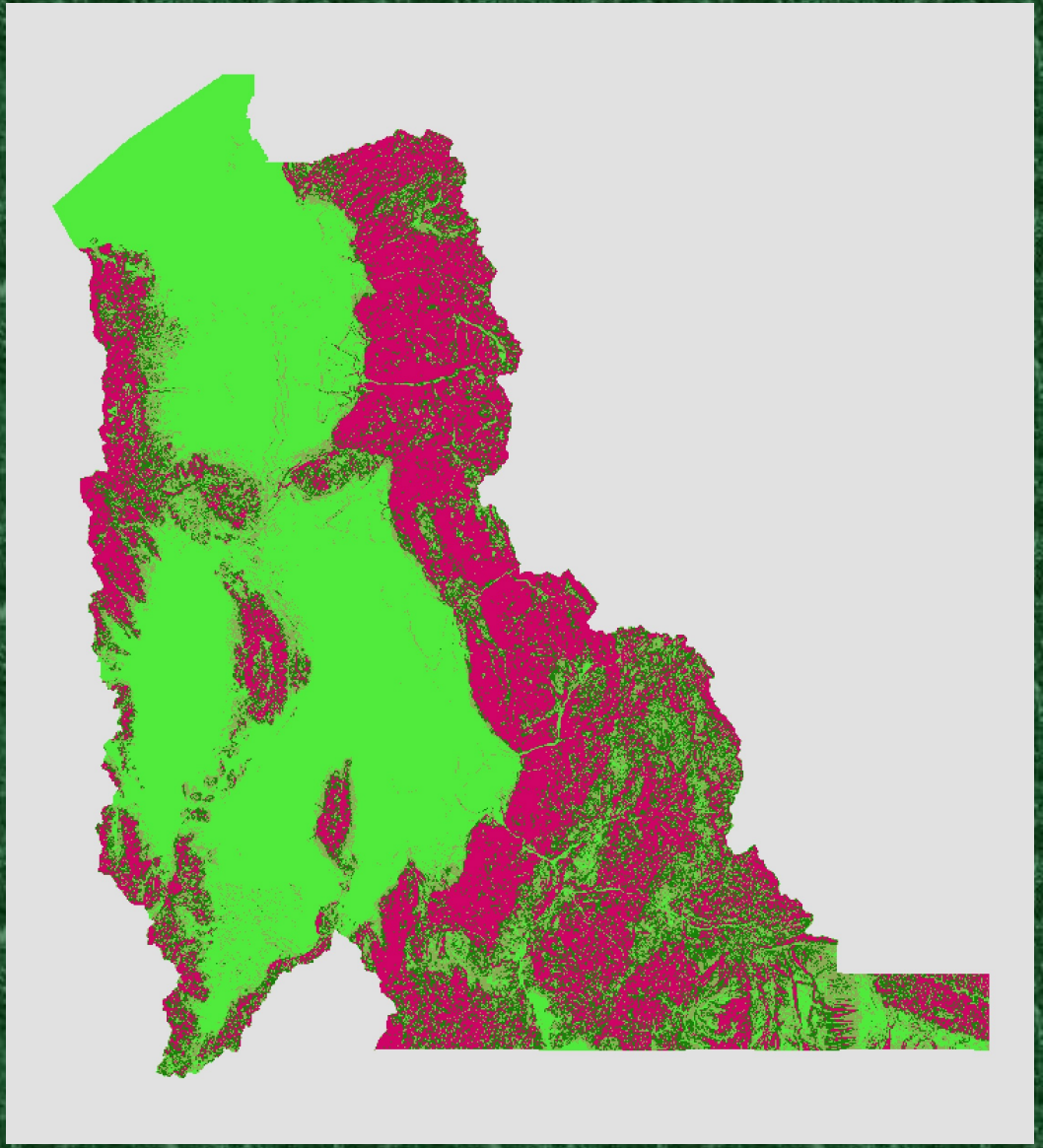
Model 2 – Building Site Preference

(Roads + Slope + Soils + Urban Hubs + Water Works)

* Lakes * Federal Land = Preferred Building Sites

Model 2 - Slope

Value	Percent Slope
3	**0 – 10 percent**
2	**10 – 20 percent**
1	**20 – 35 percent**
0	**> 35 percent**



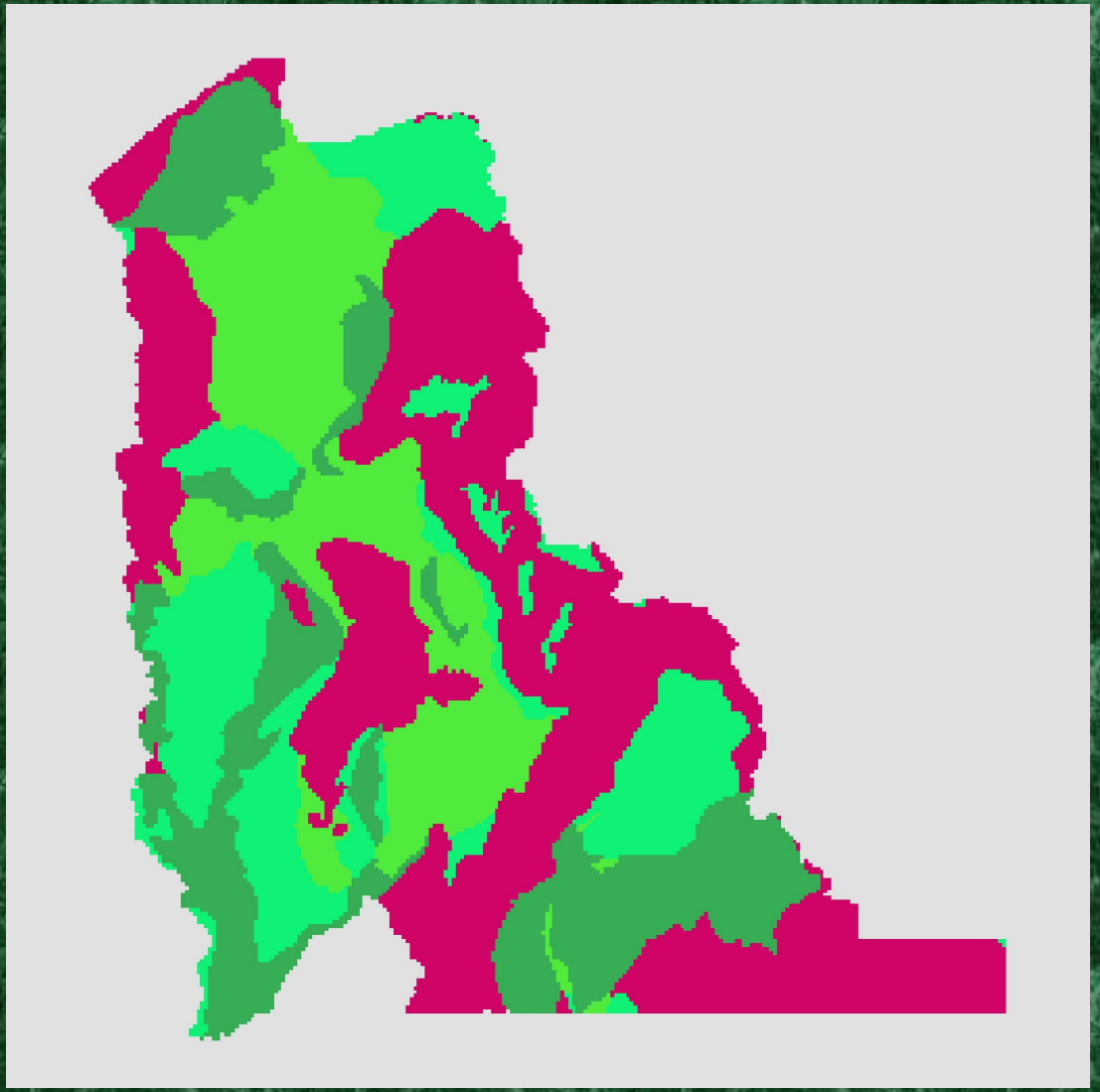
Model 2 – Building Site Preference

(Roads + Slope + Soils + Urban Hubs + Water Works)

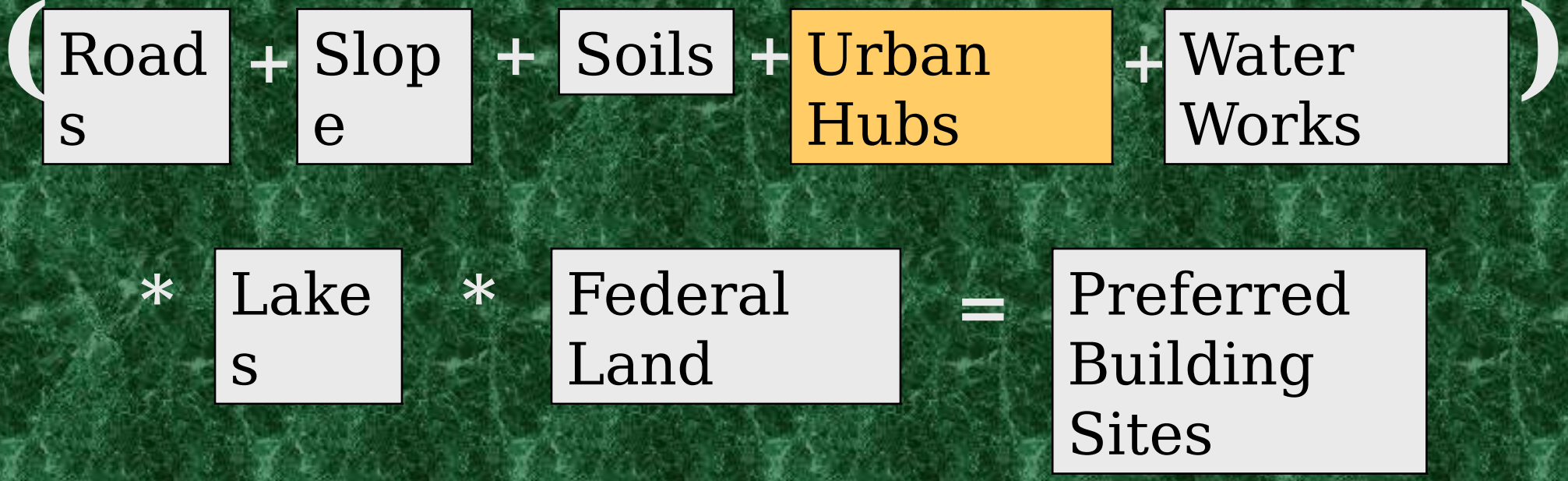
* Lakes * Federal Land = Preferred Building Sites

Model 2 - Soils

Value	Geomorphology
3	**Plateaus, valley bottoms**
2	**Basins, fans, terraces**
1	**Valley slopes, hillslopes**
0	**Mountains, lakes**



Model 2 – Building Site Preference



Model 2 – Urban Hubs

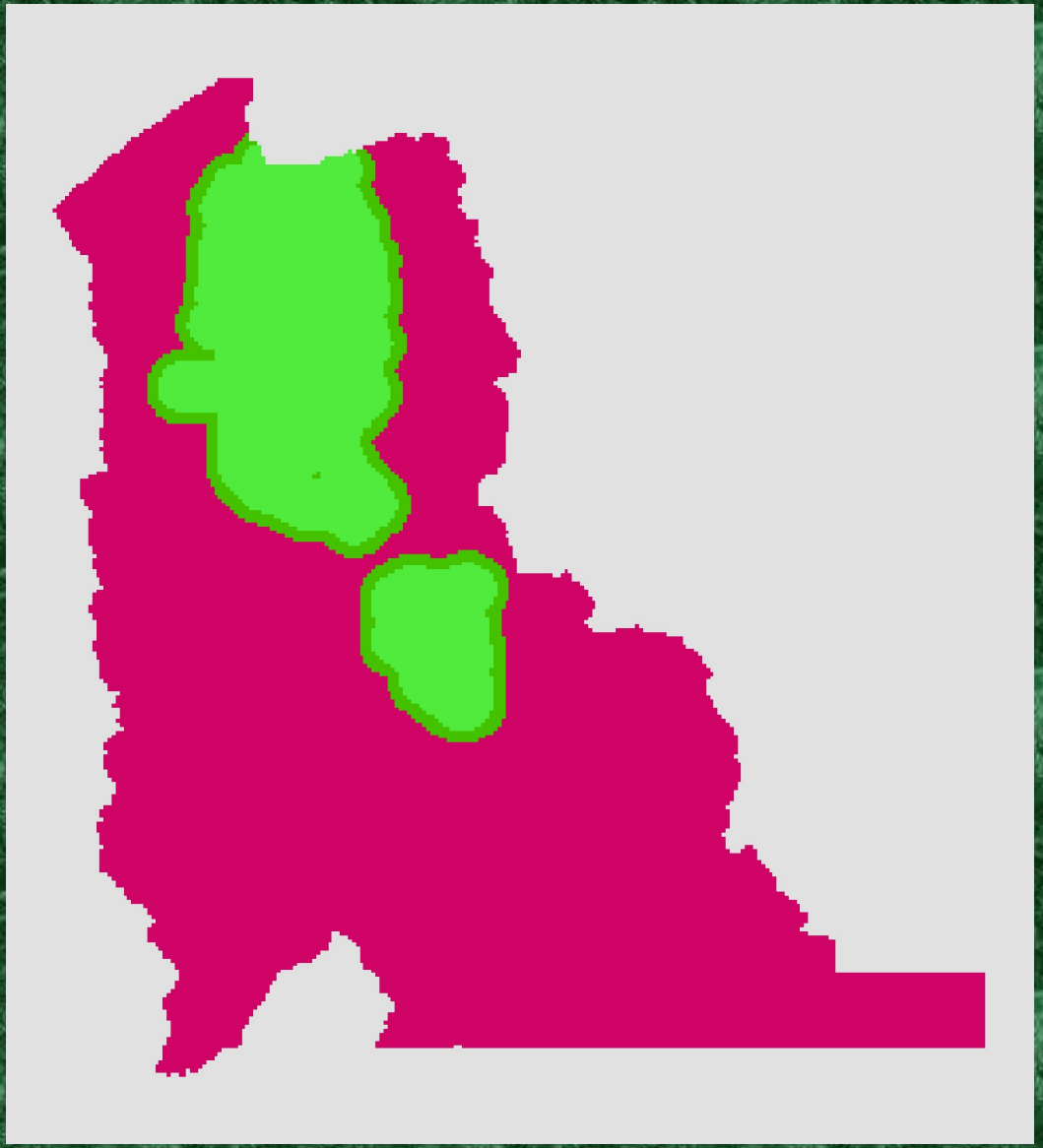
Value	Growth Rings
3	**0 – 4.8 km**
2	**4.8 – 9.6 km**
1	**9.6 – 14.4 km**
0	**> 14.4 km**

Model 2 – Building Site Preference

(Roads + Slope + Soils + Urban Hubs + Water Works) * Lakes * Federal Land = Preferred Building Sites

Model 2 – Water Works

Value	Water Works Buffer
2	**0 – 3.2 km**
1	**3.2 – 4.8 km**
0	**> 4.8 km**

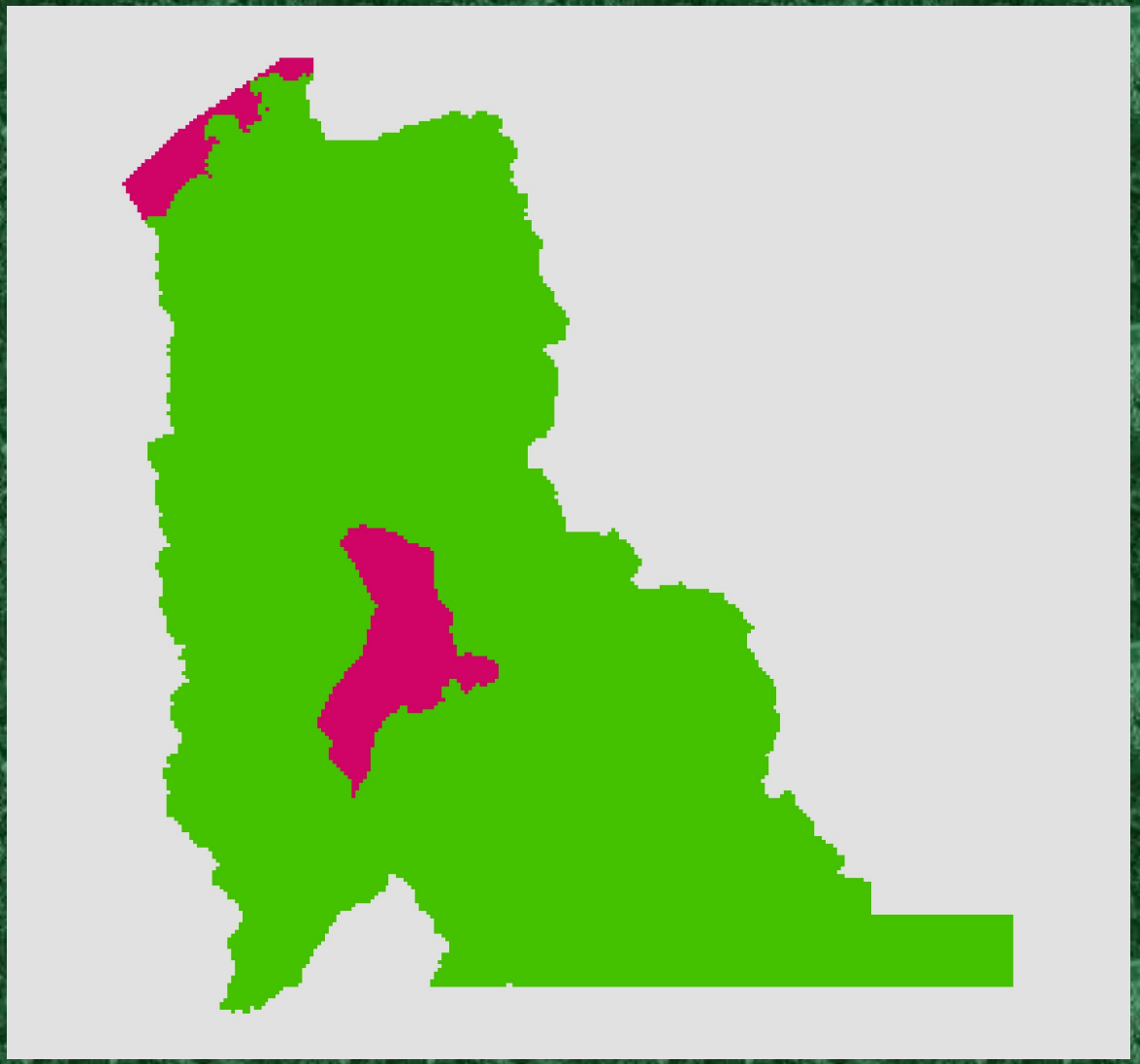


Model 2 – Building Site Preference

(Roads + Slope + Soils + Urban Hubs + Water Works) * Lakes * Federal Land = Preferred Building Sites

Model 2 - Lakes

Lakes - Excluded

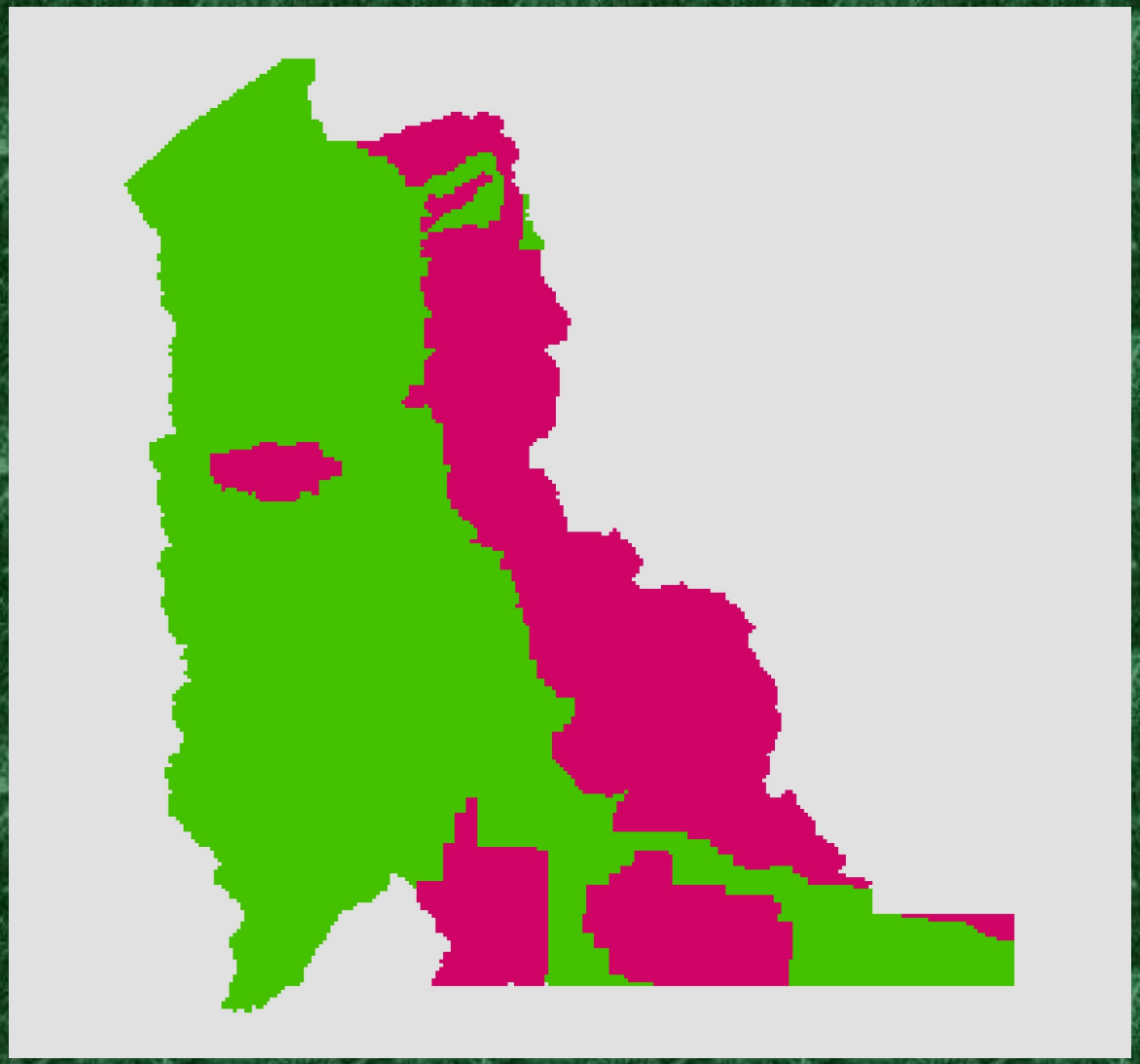


Model 2 – Building Site Preference

(Roads + Slope + Soils + Urban Hubs + Water Works) * Lakes * Federal Land = Preferred Building Sites

Model 2 – Federal Land

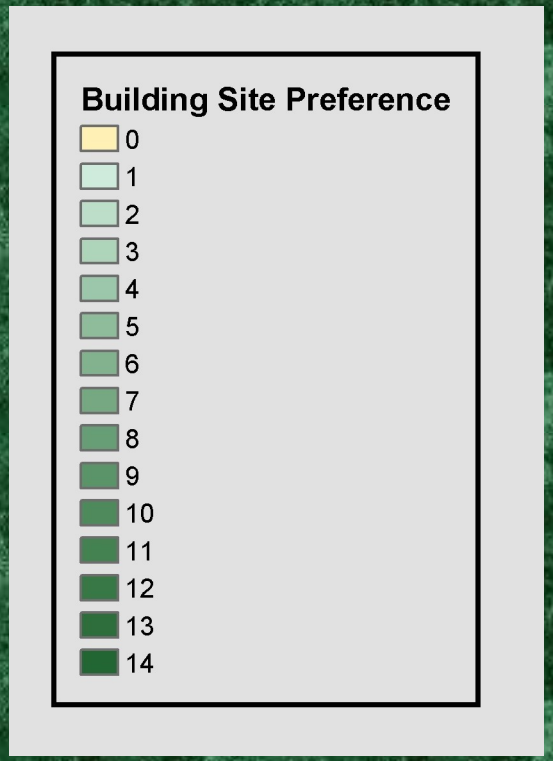
Federal Land - Excluded

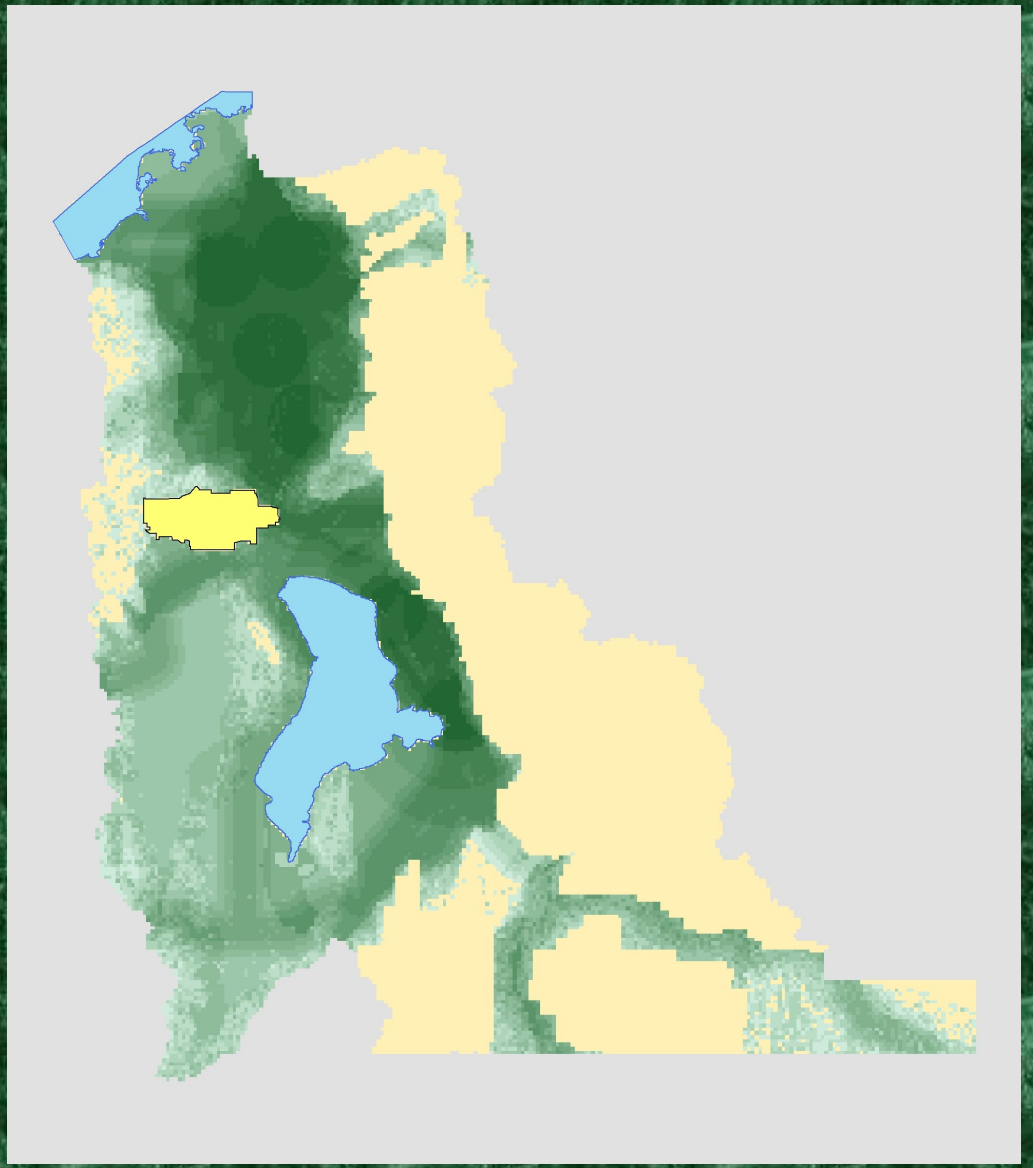


Model 2 – Building Site Preference

(Roads + Slope + Soils + Urban Hubs + Water Works) * Lakes * Federal Land = Preferred Building Sites

Model 2 – Building Site Preference





Value	Number of Acres	% of Total Area
0	**841,179**	**45**
1	**45,836**	**2**
2	**72,152**	**4**
3	**80,801**	**4**
4	**142,328**	**8**
5	**96,121**	**5**
6	**96,800**	**5**
7	**87,966**	**5**
8	**51,026**	**3**
9	**67,396**	**4**
10	**45,157**	**2**
11	**46,701**	**2**
12	**52,323**	**3**
13	**84,384**	**4**
14	**71,473**	**4**

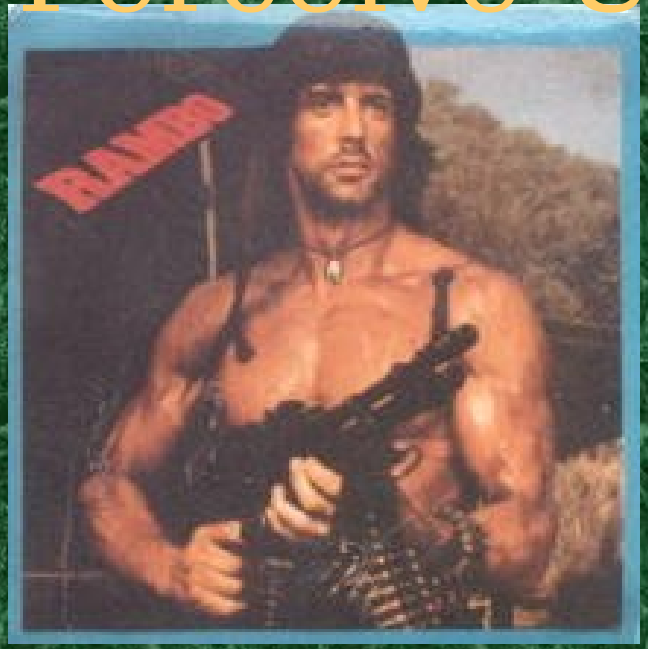
What Can We Do?

Take a Proactive Approach

- Educate and Inform Soldiers and Neighbors

How Do Our Neighbors Perceive Us?

The Duke



Rambo

Gomer

What Can We Do?

Take a Proactive Approach

- Educate and Inform Soldiers and Neighbors
- **Create Conservation Easements**

Conservation Easements

State Level

- Transfer of Development Rights
- Purchase Right of First Refusal

National Level

- USDA – Farm Bill Conservation Provision
- Matching Funds from Federal Agencies
- The Nature Conservancy

What Can We Do?

Take a Proactive Approach

- Educate and Inform Soldiers and Neighbors
- Create Conservation Easements
- **Try to Manage Issues with Cooperation**

Cooperation

Questions?